ANNUAL REPORT

OF THE

REGENTS OF THE UNIVERSITY

OF THE

STATE OF NEW-YORK.

MADE TO THE LEGISLATURE, FEBRUARY 29, 1836.

ALBANY:
PRINTED BY CROSWELL, VAN BENTHUYSEN AND BURT.
.....
1836.

The gentlemen composing the Board of Regents of the University at the time of making the report herewith published, were the following, with the dates of their appointment prefixed to their names:

The GOVERNOR, ex officio.
The LIEUT. GOVERNOR, ex officio.

1807, Feb'ry 11, ELISHA JENKINS.
1819, March 16, STEPHEN VAN RENSSELAER.
1822, Feb'ry 7, JAMES THOMPSON.
1823, Feb'ry 14, JAMES KING.
" " PETER WENDELL, M. D.
1825, Jan'ry 12, JOHN GREIG.
1826, Jan'ry 26, JESSE BUEL.
" " GULIAN C. VERPLANCK.
1829, March 31, GERRIT Y. LANSING.
" " JOHN K. PAIGE.
1831, March 23, JOHN A. DIX.
1833, Feb'ry 5, WILLIAM CAMPBELL.
" " ERASTUS CORNING.
" April 4, PROSPER M. WETMORE.
1834, April 17, JAMES McKOWN.
" " JOHN L. GRAHAM.
1835, Jan'ry 20, AMASA J. PARKER.
" April 8, JOHN McLEAN.
" May 9, WASHINGTON IRVING.

STEPHEN VAN RENSSELAER,
Chancellor.

GIDEON HAWLEY, *Secretary.*

REPORT, &c.

TO THE LEGISLATURE OF THE STATE OF NEW-YORK.

The Regents of the University being required by law to make an annual report to the Legislature, embracing a general view of the various matters contained in the returns made to them from the several colleges and academies in the State subject to their visitation, respectfully submit the following

REPORT:

That during their present annual session, reports have been made to them from Columbia, Union and Hamilton colleges, and from the College of Physicians and Surgeons of the Western District. But no such report has been received from the College of Physicians and Surgeons in the city of New-York, nor from the University in that city, nor from Geneva college.

The customary academic returns have been received from all the academies in the State subject to the visitation of the Regents, except Greenville academy, in the county of Greene, Fort-Covington, in the county of Franklin, Plattsburgh, in the county of Clinton, Cayuga academy, at Aurora, in Cayuga county, Livingston County High school, at Geneseo, and the Buffalo Literary and Scientific academy.

From the report of Columbia college, it appears that the number of students matriculated for the full subgraduate course of instruction in that institution, is 97, and that the number in the grammar school, attached to the college, is 280; making the whole number of students in both the college and grammar school, 377. At the last annual commencement, in October, the degree of Bachelor of Arts was conferred on 24 candidates, and that of Master of Arts on 12.

The following extract from the report of the college is deemed by the Regents of sufficient importance to be embodied in their own report, and transmitted to the Legislature.

"The increasing preference manifested in our community for those branches of education of which the utility and the practical application are immediate, seems to have diverted from the pursuit of classical literature all but such students as are intended for the learned professions; whilst the relative number of those who devote themselves to those professions appears to be decreasing. The consequent diminution in importance of those classical studies which have been so long deemed essential in those professions, has naturally led to at least the practical depression of the standards, both of admission and proficiency, in most of the colleges of the United States.

"To these causes, the trustees in a great measure attribute the comparatively small number of those who avail themselves of the advantages, both of classical and scientific education, held forth to the community by the institution under their charge. It is, however, by no means their intention, to alter the present requisites of admission into the college, or to depart from the high standard of proficiency required of candidates for its honors. On the contrary, they firmly believe, that both the interests of the public, and the reputation of the college, are more effectually promoted by annually conferring the honors of this institution upon a few well instructed graduates, than by sending forth a more numerous body of superficial scholars, under the sanction of its diplomas.

"Nevertheless, something seems necessary to be done, in compliance with the prevalent opinions of our age and country, to increase the general usefulness of this college, as a seminary of knowledge; and it is believed, that much may be effected, by a modification of the statutes passed in 1830, establishing a partial course of instruction for students whose parents or guardians may not wish them to pursue classical studies.

"Hitherto, but few have availed themselves of the opportunity thus afforded of attending any portion of the *Literary and Scientific course*, exclusive of the classics. At no time has their number been sufficient to enable the faculty to form them into separate

classes; and for several sessions past, not a single individual has been matriculated for the partial course.

"Perhaps the inefficiency of the present system has been owing as much to the small numbers of those upon whom it has operated, and to the ignorance of the public in regard to its nature, and even its existence, as to any inherent imperfection or defect in the system itself. In either case, the trustees are convinced that some attempt should be made to attract greater numbers to this course, not only by giving it greater publicity and importance, but, by so improving and extending it, as to render it more obviously and practically useful; and they have now under their consideration a plan intended to effect those objects, and which it is hoped may be matured and carried into operation at the commencement of the next session of the college."

From the report of Union college, it appears that its present faculty consists of a president and seven professors, an instructor of the French and Spanish languages, one tutor and two fellows. The number of graduates at the last annual commencement was 88, and the whole number of students in the college for the current year, is 297.

The trustees of Hamilton college report, that its present faculty consists of a president, four professors, and a tutor; and that the whole number of students belonging to the college is now 102. The trustees state, that no part of the property bequeathed to them by the late William H. Maynard, for the endowment of a Law Professorship, has yet come to their hands.

In the College of Physicians and Surgeons of the Western District, there is a faculty, consisting of a president and five professors. The whole number of students attending the last course of lectures delivered at the college, was 163; of whom 30 have received from the Regents the degree of Doctor of Medicine. The expenses of the college continue, as heretofore, to be defrayed by its professors out of their own private funds; and they still remain personally indebted in the sum of $2,000, the unpaid balance of the debt contracted by them in the erection of a building for the accommodation of the students.

A series of schedules accompanying this report, numbered from 1 to 12 inclusive, will exhibit a view of the relative progress and

condition of the several academies from which returns have been received.

Schedule No. 1, exhibits the whole number of students taught in the several academies, (exceeding 5,500,) with the number claimed and allowed to be classical students, or students in the higher branches of English education, (exceeding 4,000,) and the apportionment, founded on the latter number, of $12,000, being that part of the income of the Literature Fund required by law to be distributed among academies. The ratio of the apportionment, or the amount apportioned for each scholar in each Senate district, is stated at the close of the schedule; from which it will be seen that the inequality noticed by the Regents in their last annual report, still continues; and to which they again respectfully invite the attention of the Legislature.

Schedule No. 2, presents a tabular view of the relative condition of the academies from which returns for the last year have been received, in respect to their permanent funds and annual revenue, together with the amount of debts due from them, and the number and salaries of the teachers employed in them respectively. From the total results collected under these different heads in the schedule, may be seen how great is the amount of fixed or permanent capital (exceeding $500,000 in value,) invested for academies in lots and buildings, in philosophical apparatus and libraries, and in other property set apart for their support; also, how great their annual income is from tuition money, amounting in one case (that of the Albany Female Academy,) to $8,239, and varying in several others, from $2,000 to $4,000; and from which also may be seen what amount is paid for salaries or compensation of teachers, being for the last year upwards of $84,000, and exceeding by more than $15,000 the amount reported as paid for the year next previous to the last.

Schedule No. 3, exhibits the amount of money received by the reporting academies, for their distributive shares of the income of the Literature Fund, apportioned for the year preceding that to which their reports relate, together with a specification of the account on which such money has been expended. It being required by law that all such money shall be "*exclusively applied and expended towards paying teachers' wages*," the Regents had hoped that no other disposition of it would be made by any academy;

and they have the satisfaction to state, that with only two or three exceptions, no other than the required disposition of it has been made. The academies which in this respect appear to have misapplied the public money, are those of Lansingburgh, Washington and Lewville. But as the misapplication is only partial, and is presumed to have arisen from inadvertence, the Regents have forborne to subject the defaulting academies to a forfeiture of their distributive shares of the public money for the present year, believing that such defaults will not again occur.

Schedules No. 4 and 5 are referred to by the Regents, as containing an elaborate view of the various subjects of study pursued, and class or text books used, in the several academies from which returns have been received for the last year; and in the next succeeding schedule (No. 6,) will be found various extracts from academic reports, exhibiting either general views on the subject of education, or whatever appears to be special or peculiar to any academy in the mode of instruction pursued in it.

In their last annual report to the Legislature, the Regents, adverting to the contents of schedules accompanying that report, similar to those last above referred to, availed themselves of the occasion to observe, that the information contained in such documents, although probably of no great interest to the public generally, would be specially interesting to each academy, as it would enable it to compare its own condition with that of other kindred institutions, and thereby to discover and supply its own deficiencies. The observation then made as matter of anticipation, has been fully verified by the experience of the last year, and the Regents have now the satisfaction to communicate, in the schedules above referred to, still more ample information on the same subject matter, than they were enabled to do in their last previous report; and they are happy in being able, from past experience, to renew their former assurances of the value of such information.

Schedule No. 7, contains abstracts from the academic returns, showing the various prices charged for tuition in the several academies, with the average price of board in their vicinity.

The Regents of the University having been empowered by an act of the Legislature, "relating to the distribution and application of the revenue of the Literature Fund," passed April 22, 1834, to assign, in their discretion, to the several academies and

schools subject to their visitation, certain parts of that revenue not exceeding $250 a year to any one academy, to be applied to the purchase of text books, maps and globes, or philosophical or chemical apparatus, on condition that the trustees of such academies should "raise and apply an equal sum of money to the same objects," they did, as stated in their last annual report, require the several academies subject to their visitation to signify whether, if any money should be assigned to them by the Regents for the purposes contemplated by said act, they (the trustees of such academies,) would raise and apply an equal sum of money for the same purposes. The particular proceedings of the Regents in the matter above referred to, with a particular statement of the several academies which have availed themselves of the provision made for their benefit in the act of the Legislature above mentioned, will be found in schedule No. 8, appended to this report.

Abstracts of the usual returns of meteorological observations, made at most of the academies in the State, during the last year, will be found in sundry voluminous and elaborate schedules accompanying this report; and observations on the variations of the magnetic needle made at one of the colleges and a few of the academies, will also be found in another schedule, (No. 9.)

In their last annual report, the Regents, adverting to the great deficiencies and irregularities in the collegiate reports as then made to them, and adverting also to their being empowered by law to prescribe the forms of such reports, informed the Legislature that they had, as well in pursuance of the power conferred on them by law, as by virtue of their authority, as visiters of the colleges founded by them, taken the necessary measures to prescribe the requirements and forms for all future collegiate reports; and they, on that occasion, expressed their hope to be able to present, in their own future reports to the Legislature, more satisfactory views of the relative progress and condition of the several colleges in the State, subject to their visitation, than they had before been enabled to do. But in the hope thus expressed, and as they thought, reasonably entertained by them, they regret to say they have been disappointed. For although Hamilton college and the College of Physicians and Surgeons of the Western District have made their last reports in professed conformity to the new instructions issued by the Regents, the other colleges, so far as any reports have as yet been made by them, have not observed the same conformity, alleging

as the chief cause of their omission, that they did not receive the instructions of the Regents in season to be able to comply with them for the present year; but giving assurances of such compliance, (subject however to certain contingent qualifications.) for the ensuing year. The Regents can therefore only renew the expression of the hope conveyed in their last report, that they may be enabled to present in their next annual report to the Legislature, a more satisfactory view of the relative progress and condition of the several colleges subject to their visitation, than they are now enabled to do. In this renewed hope they are the more sanguine, because they do not believe the colleges can long remain insensible to the mutual benefits they will derive from communicating to each other, through the medium of their reports to the Regents, and the Regents' report to the Legislature, the information required by the instructions above referred to. That the Legislature may see what will be the general nature of such information, a copy of those instructions is herewith transmitted in schedule No. 12.

The Regents had the honor to state, in their last annual report, the measures which they had adopted for the purpose of carrying into complete effect the design of the Legislature, to employ the incorporated academies for the education of common school teachers. The plan of organizing a department in one academy in each Senate district, was presented in that report; and it was announced that the assent of the eight academies to the establishment of the proposed departments had been received.

For the purpose of facilitating the organization of the departments, and securing an entire uniformity as to the extent to which the course of instruction in each of the prescribed subjects should be carried, the committee of the Regents to which some details connected with the execution of the plan had been confided, invited the principals of the eight academies to meet them at Albany on the 1st of September last. The invitation was accepted, and the meeting was attended by the principals of all the academies, excepting that of Middlebury, in the eighth Senate district. The gentlemen were several days in session, and the result of their deliberations will be seen by reference to the annexed schedule, marked No. 10.

By this meeting, it is believed that the great object in view will be secured. An entire uniformity in the course of instruction will

prevail in all the departments; uniform results will follow; and the teachers who are sent out to pursue their vocation, will carry with them the elements of that intellectual reform in the course of common school education, which the system so much requires, in order to render it equal to its objects.

It will be perceived that Erasmus-Hall, the academy in the first Senate district, has voluntarily relinquished the department which it undertook to establish, under circumstances reflecting great credit upon the liberality of its directors. The Regents were apprehensive from the outset, that the expenses of subsistence in that district would oppose a serious obstacle to the successful operation of a department for the education of teachers within it; and the result has verified their apprehensions; for they are satisfied that no exertion has been wanting on the part of the academy chosen for the purpose, to accomplish the object in view. Unless some arrangement can be made with some other institution in the district, for the establishment of a department there, under circumstances affording a strong assurance of success, it will be transferred to one of the academies in the interior of the State. The most important consideration connected with the local position of the department is, after all, that of placing it where it will be likely to attract the greatest possible number of students.

In the St. Lawrence, Oxford and Canandaigua academies, departments of instruction for teachers already existed; and the effect of the measures of the Regents in relation to them was to give new activity to those which they had before adopted for themselves. By the annexed schedule, marked No. 11, it will be seen that the results in these three institutions have been equal to every expectation which could reasonably have been entertained. The whole number of pupils actually receiving instruction as teachers in the departments established in them, at the date of their reports, was 103.

The meeting of the principals in Albany, though appointed at the earliest day consistent with the convenience of all the parties concerned, was so soon before the period of making the annual report, as to leave for those academies in which departments were not already established, little more than time enough to organize them before an account of them was to be rendered. The only one of these academies which returns any students in the teachers' department, is that at Middlebury, which had five at the date of

the report, making in all 166 students actually in training for common school teachers. In all of the academies some difficulty has arisen, from exacting a pledge from the students proposing to enter the department, with a view to devote themselves to the vocation of teaching. The Regents have obviated this difficulty, by authorizing the departments to be thrown open to all who choose to enter them for the purpose of being trained as teachers; believing as they do, that few will be disposed to continue the course without intending to follow teaching as a vocation; that no pledge can be effectual, unless the inhabitants of school districts hold out the necessary inducement of an adequate compensation for teachers, and that, with such an inducement, the pledge is useless.

Almost all the academies are enlarging their edifices at their own expense, for the accommodation of the teachers' departments, and have employed instructors for them at salaries exceeding the sum received from the Literature Fund for the purpose. The Regents feel confident that another year will exhibit results which will be entirely satisfactory, as to the feasibility of the plan, and its adequacy to the objects in contemplation of the Regents in adopting it.

During the present session of the Board, the Regents have declared their approbation of an application to found a college at Auburn, to be called "Auburn College." The application was made according to the provisions of the sixth section of the act relative to the University, passed April 5, 1813.

If the question presented had been whether it would be expedient at the present time to increase the number of colleges in this State, or to add any funds offered to the endowments of those already chartered, the Regents would not have hesitated to prefer the latter; but the funds offered are raised solely upon the condition of founding a new and separate institution; and the application is made by very numerous individuals of the highest respectability residing in a prosperous and increasing section of the State, proposing voluntarily to devote $80,000 to the cause of literature, and under circumstances of so much weight, that the board did not feel at liberty, in the exercise of the discretionary power vested in them, to reject the generous and patriotic gift.

The conditions imposed upon the applicants as preliminary to the grant of a charter are, that within three years the trustees

shall become possessed of a site and buildings, free from incumbrances, the cost of which shall not be less than 30,000 dollars, and a permanent fund of at least 50,000 dollars, secured by mortgage on real estate of double the value, bearing an interest of seven per centum.

The Regents have only to add, that although during the past year there has not been any extraordinary increase of the number of students, in the institutions under their visitation, they may congratulate the Legislature and the public generally, in the continued prosperity of all of them; and in the additional zeal manifested by those who are entrusted with the more immediate care and government of those institutions, to diffuse the lights of science and learning, and to impress upon their pupils the principles of sound morality and virtue.

All which is respectfully submitted.

By order of the Regents.

S. VAN RENSSELAER,
Chancellor of the University.

GIDEON HAWLEY, *Secretary.*
Albany, February 29th, 1836.

SCHEDULE No. 1.

Containing abstracts from the Academic reports for 1835, *made to the Regents of the University, exhibiting the number of students taught in the several Academies from which such reports have been received, with the apportionment of their distributive shares of* $12,000, *part of the income of the Literature Fund for said year.*

Names of Academies incorporated by the Regents, or subject to their visitation, in each Senate District.	Where established.	Whole No. of students belonging to academy at the date of report.	No. of students claimed by the trustees to have pursued classical studies, or the higher branches of English education, or both, for 4 months of said year.	No. of students allowed by the Regents to have pursued said studies for 4 months of said year.	Amount of money apportioned by the Regents from the income of the Literature Fund.
First District.					
Clinton,	East-Hampton, Suffolk Co.	38	15	15	71 00
Erasmus-Hall,	Flatbush, Kings Co.	122	69	69	326 50
N. Y. Ins. for Deaf & Dumb,	New-York City,	140	140	140	662 40
Oysterbay,	Oysterbay, Queens Co.	34	15	15	71 00
Union-Hall,	Jamaica, Queens Co.	115	78	78	369 10
		449	317	317	$1,500 00
Second District.					
Delaware,	Delhi, Delaware Co.	71	36	36	128 63
Dutchess County,	Poughkeepsie, Dutchess Co.	97	53	53	189 26
Farmer's-Hall,	Goshen, Orange Co.	33	31	31	110 73
Kingston,	Kingston, Ulster Co.	52	27	24	96 50
Montgomery,	Montgomery, Orange Co.	105	72	72	257 05

No. 1—CONTINUED.

Names of Academies incorporated by the Regents, or subject to their visitation, in each Senate District.	Where established.	Whole No. of students belonging to academy at the date of report.	No. of students claimed by the trustees to have pursued classical studies, or the higher branches of English education; or both, for 4 months of said year.	No. of students allowed by the Regents to have pursued said studies for 4 months of said year.	Amount of money apportioned by the Regents from the income of the Literature Fund.
Mount-Pleasant,	Mount-Pleasant, Westchester Co	137	59	59	210 63
New-Paltz,	New-Paltz, Ulster Co.	70	38	31	110 73
Newburgh,	Newburgh, Orange Co.	48	54	54	192 78
North-Salem,	North-Salem, Westchester Co.	32	39	39	139 32
Red-Hook,	Redhook, Dutchess Co.	15	18	18	64 37
		660	427	420	$1,500 00
Third District.					
Albany,	Albany city,	217	103	103	212 50
Albany Female Academy,	Albany city,	350	230	230	474 64
Albany Female Seminary,	Albany city,	120	91	86	177 38
Hudson,	Hudson city,	41	33	33	68 14
Jefferson,	Jefferson, Schoharie Co.	59	32	32	66 03
Kinderhook,	Kinderhook, Columbia Co.	55	72	72	148 33
Lansingburgh,	Lansingburgh, Rensselaer Co.	72	20	20	41 37
Schenectady,	Schenectady city,	232	151	151	311 61
		1,146	732	727	$1,500 00

Fourth District.					
Cambridge Washington,	Cambridge, Washington Co.	24	23	23	92 26
Canajoharie,	Canajoharie, Montgomery Co.	32	26	26	104 30
Franklin,	Malone, Franklin Co.	58	42	40	160 48
Gouverneur High School,	Gouverneur, St. Lawrence Co.	46	37	37	148 42
Granville,	North-Granville, Washington Co	50	51	49	196 55
Johnstown,	Johnstown, Montgomery Co.	36	10	10	40 11
St. Lawrence,	Potsdam, St. Lawrence Co.	140	108	108	433 07
Washington,	Salem, Washington Co.	61	81	81	324 81
		447	378	374	$1,500 00
Fifth District.					
Bridgewater,	Bridgewater, Oneida Co.	31	47	47	77 50
Clinton Grammar School,	Clinton, Oneida Co.	25	20	20	32 96
Clinton Liberal Institute,	Clinton, Oneida Co.	95	101	101	166 47
Fairfield,	Fairfield, Herkimer Co.	117	68	67	110 80
Hamilton,	Hamilton, Madison Co.	83	71	71	117 24
Lowville,	Lowville, Lewis Co.	72	48	45	74 35
Oneida Conference Seminary,	Cazenovia, Madison Co.	324	221	220	362 62
Oneida Institute,	Whitesboro', Oneida Co.	.....	86	86	142 00
Rensselaer, Oswego,	Mexico, Oswego Co.	50	58	57	94 24
Union,	Belville, Jefferson Co.	53	43	43	70 80
Utica,	Utica city,	125	120	120	197 79
Whitesboro',	Whitesboro', Oneida Co.	50	34	33	53 23
		1,025	917	910	$1,500 00

Names of Academies incorporated by the Regents, or subject to their visitation, in each Senate District.	Where established.	Whole No. of students belonging to academy at the date of report.	No. of students claimed by the trustees to have pursued classical studies, or the higher branches of English education, or both, for 4 months of said year.	No. of students allowed by the Regents to have pursued said studies for 4 months of said year.	Amount of money apportioned by the Regents from the income of the Literature Fund.
Sixth District.					
Cherry-Valley,	Cherry-Valley, Otsego Co.	34	55	45	163 12
Cortland,	Homer, Cortland Co.	101	153	137	496 20
Franklin,	Prattsburgh, Steuben Co.	20	20	20	72 46
Hartwick,	Hartwick, Otsego Co.	25	29	29	105 07
Ithaca,	Ithaca, Tompkins Co.	65	52	52	188 38
Oxford,	Oxford, Chenango Co.	93	83	83	300 77
Owego,	Owego, Tioga Co.	94	50	48	174 00
		432	442	414	$1,500 00
Seventh District.					
Auburn,	Auburn, Cayuga Co.	62	59	59	211 22
Canandaigua,	Canandaigua, Ontario Co.	135	81	81	289 98
Onondaga,	Onondaga Hollow, Onondaga Co.	50	13	13	46 54
Ontario Female Seminary,	Canandaigua, Ontario Co.	103	82	82	293 54
Ovid,	Ovid, Seneca Co.	73	31	31	110 98
Palmyra High School,	Palmyra, Wayne Co.	60	60	60	214 80
Pompey,	Pompey, Onondaga Co.	72	41	41	146 78

Yates County,	Penn-Yan, Yates Co.	91	52	52	186 16
		646	419	419	$1,500 00
Eighth District.					
Clarkson,	Clarkson, Monroe Co.	23	22	22	75 84
Fredonia,	Fredonia, Chautauque Co.	71	71	71	244 24
Gaines,	Gaines, Orleans Co.	101	35	35	120 40
Lewiston,	Lewiston, Niagara Co.	65	53	53	182 32
Middlebury,	Middlebury, Genesee Co.	162	54	54	185 76
Monroe,	Henrietta, Monroe Co.	40	51	50	172 00
Rochester High School,	Rochester city,	241	99	99	340 56
Springville,	Springville, Erie Co.	40	52	52	178 88
		743	437	436	$1,500 00

RECAPITULATION.

	Whole No. of students belonging to academies at the date of reports.	No. of students claimed by the trustees to have pursued classical studies, or the higher branches of English education, or both, for 4 months of said year.	No. of students allowed by the Regents to have pursued said studies for 4 mo. of said year.	Amount of money apportioned by the Regents from the income of the Literature Fund.	Per scholar.
1st District,...	449	317	317	$1,500	$4 73
2d do ...	660	427	420	1,500	3 57
3d do ...	1,146	732	727	1,500	2 06
4th do ...	447	378	374	1,500	4 01
5th do ...	1,025	917	910	1,500	1 64
6th do ...	432	442	414	1,500	3 62
7th do ...	646	419	419	1,500	3 58
8th do ...	743	437	436	1,500	3 44
Totals,...	5,548	4,069	4,017	$12,000	

The rate per scholar, if the apportionment had been made without reference to districts, would have been about $2.$\frac{99}{100}$.

A true abstract and apportionment.

GIDEON HAWLEY,
Secretary of the University.

Albany, Feb. 26, 1836.

SCHEDULE No. 2.

Containing abstracts from Academic reports for 1835, *made to the Regents of the University, exhibiting a statement of the permanent funds and annual revenue of the several academies from which such reports were received, together with the amount of debts due by them respectively, the number of teachers employed therein, and the amount of their compensation or salary, per annum*

Names of Academies.	Permanent funds.				No. of books in library.	Revenue.		Debts due by academy.	No. of teachers.	Compensation or salary of teachers.
	Value of academy lot and building.	Value of other real estate.	Value of philosophical apparatus & library.	Value of other personal property.		Tuition money for year ending on date of report.	Interest or income of permanent funds for said year.			
First District.										
Clinton,	$2,000	.....	200	700	.....	450	.....	none,	1	$480
Erasmus Hall,	8,850	none,	2,146	1,325	1,330	2,430	603	317	7	3,030
N. Y. Institution for Deaf & Dumb,*										
Oysterbay,	3,000	.....	100	365	.....	.....	13	none,	1	360
Union Hall,	5,060	none,	600	2,250	.....	2,215	.....	.....	7	2,940
Second District.										
Delaware,	1,275	.....	720	5,505	.....	496	319	.....	4	815
Dutchess County.	4,000	2,000	150	none,	none,	2,072	none,	1,266	3	2,172
Farmers' Hall,	1,000	none,	150	none,	191	450	none,	none,	1	497
Kingston,	3,500	none,	400	100	250	640	none,	none,	2	975
Montgomery,	5,500	300	822	.....	.....	1,850	.....	244	5	2,025
Mount- Pleasant,	15,000	none,	8	none,	.....	1,565	700	6,000	5	2,080

* See act, 15th April, 1830.

No. 2—Continued.

Names of Academies.	Permanent funds.				No. of books in library.	Revenue.		Debts due by academy.	No. of teachers.	Compensation or salary of teachers.
	Value of academy lot and building.	Value of other real estate.	Value of philosophical apparatus and library.	Value of other personal property.		Tuition money for year ending on date of report.	Interest or income of permanent funds for said year.			
Newburgh,	5,000	none,	1,000	none,	500	900	200	200	4	$900
North Salem,	1,600	.....	250	101	200	410	73	.....	1	410
Redhook,	1,500	.....	200	100	180	329	10	10	1	425
Third District.										
Albany,	90,000	1,600	1,636	19,900	349	4,454	1,283	1,000	8	5,324
Albany Female Academy,	31,342	5,000	1,350	1,400	967	8,239	.....	18,400	14	5,575
Albany Female Seminary,	7,000	.....	500	500	.....	2,150	.....	1,500	7	2,210
Hudson,	4,000	1,000	25	50	.....	500	15	500	1	600
Jefferson,	4,000	none,	704	none,	.....	552	none,	723	3	1,085
Kinderhook,	1,500	none,	575	100	450	1,034	none,	none,	3	1,200
Lansingburgh,	3,100	200	270	4,000	200	694	160	180	2	732
Schenectady,	.....	.....	35	.....	.....	2,773	.....	none,	14	2,732
Fourth District.										
Cambridge Washington,	1,000	1,500	216	1,188	.....	320	115	425	1	419
Canajoharie,	1,500	.....	25	40	none,	375	.....	43	2	572
Franklin,	1,200	none,	none,	331	none,	497	282	259	2	847
Gouverneur,	3,500	none,	none,	none,	.....	548	none,	500	2	754
Granville,	2,000	none,	100	none,	75	450	none,	30	1	400
Johnstown,	1,500	none,	100	1,311	60	264	92	none,	2	436

Plattsburgh,										
St. Lawrence,	4,000	700	1,086	1,953	331	1,279	106	1,563	5	1,750
Washington,	5,500	none,	150	.....	200	737	200	1,100	2	1,000
Fifth District.										
Bridgewater,	1,500	.....	100	50	10	516	.....	240	2	730
Clinton Grammar School,	2,000	none,	none,	none,	none,	300	none,	none,	1	331
Fairfield,	8,000	none,	1,250	.....	650	1,000	none,	none,	6	1,000
Hamilton,	4,000	none,	500	3,600	300	935	250	3,300	4	915
Lowville,	5,000	none,	350	1,950	121	922	136	925	4	922
Oneida Conference Seminary,	16,000	.....	500	5,000	.....	2,079	.....	5,579	8	2,200
Oneida Institute,	20,000	300	400	4,500	700	1,500	.....	8,000	3	3,300
Rensselaer Oswego,	600	700	525	1,200	26	530	50	1,050	2	876
Union,	6,000	.....	165	.....	208	460	.....	1,300	1	544
Utica,	10,000	700	100	663	.....	1,663	35	none,	4	1,575
Whitesboro,	1,200	none,	none,	none,	none,	.....	none,	300	4	
Sixth District.										
Cherry-Valley,	2,500	.....	400	231	.....	563	.....	.....	2	800
Cortland,	3,000	none,	476	3,742	none,	2,122	262	none,	6	2,400
Franklin,	200	none,	1,298	4,335	1,000	234	255	60	1	500
Hartwick,	5,000	600	1,000	18,338	.....	260	1,033	.....	2	1,200
Ithaca,	8,000	2,500	.....	4,261	.....	800	448	2,600	2	1,100
Oxford,	2,600	.....	131	3,088	.....	1,274	216	166	5	1,200
Owego,	4,000	1,950	200	80	none,	1,300	.....	500	3	1,850
Seventh District.										
Auburn,	4,000	2,000	none,	none,	none,	680	112	none,	2	1,000
Canandaigua,	10,000	287	825	18,754	225	2,065	1,056	none,	5	2,260
Cayuga,										
Onondaga,	4,500	none,	200	3,478	.....	474	220	none,	1	630

No. 2—Continued.

Names of Academies.	Permanent funds.				No. of books in library.	Revenue.		Debts due by academy.	No. of teachers.	Compensation, or salary of teachers.
	Value of academy lot and building.	Value of other real estate.	Value of philosophical apparatus and library.	Value of other personal property.		Tuition money for year ending on date of report.	Interest or income of permanent funds for said year.			
Ontario Female Seminary, ...	12,000	none,	1,000	.....	330	4,019	.....	5,000	9	4,308
Ovid, ...	4,000	none,	225	4,421	none,	1,000	309	500	3	1,397
Palmyra High School, ...	2,000	none,	350	none.	none,	1,315	.....	.....	5	1,400
Pompey, ...	4,700	.....	200	7,372	.....	657	427	2,000	3	1,000
Yates County, ...	4,500	none,	none,	none,	none,	1,625	none,	3,500	5	1,600
Eighth District.										
Clarkson, ...	2,500	none,	.....	4,223	.....	618	255	105	1	.....
Fredonia, ...	2,000	none,	1,000	1,000	500	733	none,	none,	3	1,425
Gaines, ...	3,000	none,	20	230	250	450	none,	240	2	691
Lewiston, ...	3,500	.....	250	7,500	none,	.....	.....	300	5	.....
Livingston County, ...										
Middlebury, ...	5,000	none,	685	5,235	350	1,120	296	none,	4	1,700
Monroe, ...	6,000	.....	100	502	.....	952	none,	453	4	992
Rochester High School, ...	7,000	none,	76	400	none,	2,617	none,	200	3	2,050
Springville, ...	3,300	.....	30	450	.....	665	none,	790	2	700
	$394,967	$21,337	$25,873	$145,322	$9,947	$74,121	$9,531	$71,368	228	$84,341

True abstract.

GIDEON HAWLEY, *Secretary of the University.*

SCHEDULE No. 3.

Containing abstracts from the Academic reports for 1835, made to the Regents of the University, exhibiting the amount of money received from the said Regents for the previous year by the several academies from which such reports were made, with a statement of the manner in which such money was expended, together with a specification of the frequency of exercises in composition and declamation in such academy.

Names of Academies.	Amount received from Regents for the previous year including bal. on hand (if any) of money before received.	*Application of money received from Regents.*	How often exercised in composition and declamation, (except females in declamation.)
First District.			
Clinton,	$96 55	Payment of teachers,	Once, 14 ds.
Erasmus Hall,	280 70	Payment of teachers,	" 14 "
N. Y. Ins. for Deaf and Dumb,		See Act 15, April, 1830, Sec. 3 and 4.	
Oysterbay,	179 40	Payment of teachers,	" 14 "
Union Hall,	312 90	Payment of teachers,	" 14 "
Second District.			
Delaware,	43 50	Payment of teachers,	" 14 "
Dutchess County,	309 65	Payment of teachers,	" 7 "
Farmers' Hall,	87 08	Payment of teachers,	" 14 "
Kingston,	111 27	Payment of teachers,	" 14 "
Montgomery,	212 91	Payment of teachers,	" 14 "
Mount-Pleasant,	234 50	Payment of teachers,	" 14 "
Newburgh,	309 65	Payment of teachers,	" 17 "
North Salem,	131 57	Payment of teachers,	" 14 "

Names of Academies.	Amount received from Regents for the previous year including bal. on hand (if any) of money before received.	*Application of money received from Regents.*	How often exercised in composition and declamation, (except females in declamation.)
Redhook,	$106 36	Payment of teachers,	Once, ... 14 ds.
Third District.			
Albany,	278 80	Payment of teachers,	" ..... 14 "
Albany Female Academy,	740 08	Payment of teachers,	Comp. once, 14 "
Albany Female Seminary,	197 45	Payment of teachers,	" 14 "
Hudson,	132 30	Payment of teachers,	Once, ... 14 "
Jefferson,	42 83	Payment of teachers,	" ..... 14 "
Kinderhook,	157 99	Payment of teachers' wages,	Comp, once, 7 ds.
			Dec. " 14 "
Lansingburgh,	34 66	Paid for repairs,	" 18 "
Schenectady,	203 00	Payment of teachers,	" 14 "
			Fem. Comp. once, 7 ds.
Fourth District.			
Cambridge Washington,	98 51	Payment of teacher,	" ..... 14 "
Canajoharie,	197 02	Payment of teachers,	" ..... 14 "
Franklin,	147 77	Payment of teachers,	" ..... 14 "
Gouverneur High School,	205 95	Payment of teachers,	
Granville,	131 52	Payment of teachers,	" ..... 14 "

Johnstown,	80	60	Payment of teachers,	"	14 "
Plattsburgh,					
St. Lawrence,	291	05	Payment of teachers,	"	14 "
Washington,	286	57	Payment of teachers and insurance premium,	"	14 "
Fifth District.					
Bridgewater,	98	56	Payment of teachers,	"	14 "
Clinton Grammer School,	31	00	Payment of teacher,	"	14 "
Fairfield,	118	50	Payment of teacher,	"	21 "
Hamilton,	198	65	Payment of teachers,	Once,	21 ds.
Lowville,	181	26	Payment of teachers and purchase of apparatus,	"	14 "
Oneida Conference Seminary,	319	00	Payment of teachers,	"	28 "
Oneida Institute,	198	48	Payment of teachers,	"	20 "
Rensselaer, Oswego,	105	73	Payment of teachers,	"	7 "
Union,	83	85	Payment of teachers,	"	14 "
Utica,	195	06	Payment of teachers,	"	28 "
Whitesboro',	123	95	Payment of teachers,	"	14 "
Sixth District.					
Cherry-Valley,	207	20	Payment of teachers,	"	14 "
Cortland,	551	05	Payment of teachers,	"	14 "
				Females,	7 "
Franklin,	182	00	Payment of teachers,	"	7 "
Hartwick,	345	03	Payment of teachers,	"	14 "
Ithaca,	53	87	Payment of teachers,		
Oxford,	227	92	Payment of teachers,	"	14 "
Owego,	132	60	Payment of teachers,	"	14 "
Seventh District.					
Auburn,	209	55	Payment of teachers,	"	14 "
Canandaigua,	199	55	Payment of teachers,	"	14 "

Names of Academies.	Amount received from Regents for the previous year including bal. on hand (if any) of money before received.	*Application of money received from Regents.*	How often exercised in composition and declamation, (except females in declamation.)
Cayuga,.....			
Onondaga,.....	$56 52	Payment of teachers,.....	Females,... 14 ds.
Ontario Female Seminary,...	289 35	Payment of teachers,.....	Comp. once, 7 ds.
Ovid,.....	113 08	Payment of teachers,.....	Once, ... 14 "
Palmyra High School,.....	269 45	Payment of teachers,.....	" .. .. 14 "
Pompey,.....	36 58	Payment of teachers,.....	" ..... 14 "
Yates County,.....	206 21	Payment of teachers,.....	" ..... 7 "
Eighth District.			
Fredonia,.....	279 62	Not stated,.....	" ..... 7 "
Lewiston,.....	204 02	Payment of teachers,.....	" ..... 14 "
Livingston Co. High School,..			
Middlebury,.....	241 82	Payment of teachers,.....	" ..... 14 "
Monroe,.....	40 32	Payment of teachers,.....	" ..... 14 "
Rochester High School,.....	513 78	Payment of teachers,.....	" ..... 7 "
Springville,.....	185 16	Payment of teachers,.....	" ..... 7 "

True abstract.

GIDEON HAWLEY,
Secretary of the University.

SCHEDULE No. 4.

Containing abstracts from the Academic reports for 1835, *made to the Regents of the University, exhibiting the different subjects of study pursued during that year, in the several academies, from which such reports were received.*

Subjects of study.	*Academies in which the subjects are studied.*	*No.*
Arithmetic,	In all academies from which reports were received,	
Algebra,	In all academies from which reports were received,	
Architecture,	Rochester, Albany,	2
Astronomy,	In all except 11, (Clinton G. School, Lowville, Cam. Washington, Gaines, C. Valley, Ithaca, Oneida Ins., Pompey, Redhook, F. Hall, Fairfield,)	
Botany,	Hamilton, Whitesboro', Onondaga, Auburn, Palmyra, Lewiston, Delaware, Dutchess, Ontario F. S., Springville, Cortland, Albany F. S., Fredonia, Monroe, Rochester, Pompey, St. Lawrence, Yates Co., Oneida C. S., Redhook, Albany F. A., Granville, Clarkson, Clinton, Owego, Schenectady, Montgomery, Kingston, Oxford, Jefferson,	30
Bookkeeping,	U. Hall, Mt. Pleasant, Washington, Hamilton, Lowville, Rens., Oswego, Union, Whitesboro', Auburn, Onondaga, Palmyra, Lewiston, Delaware, Dutchess, Ontario F. S., Gaines, Springville, Cortland, Fredonia, Johnstown, Monroe, Newburgh, North Salem, Rochester, St. Lawrence, Redhook, Granville, F. Hall, Oysterbay, Albany, Clarkson, Clinton, Hudson, Owego, Schenectady, Utica, Montgomery, Kingston, Lansingburgh, Oxford, Canandaigua, Jefferson,	42
Biblical Antiquities,	St. Lawrence,	1
Biography,	Albany,	1
Chemistry,	In all except 3, (Cam. Washington, Johnstown, Oneida Ins.)	
Composition,	In all as often on an average, as once in 14 days,	

Subjects of study.	*Academies in which the subjects are studied.*	*No.*
Conic sections,	Cambridge W., Albany, Utica,	3
Constitution, U. S.	Mt. Pleasant, R. Oswego, Washington, Whitesboro', Palmyra, Delaware, Fredonia, Monroe, Redhook, Albany F. A., Granville, Albany, Owego, Utica,	14
Constitution, N. Y.	Mt. Pleasant, R. Oswego, Washington, Whitesboro', Granville, Albany, Utica,	7
Criticism, Elements of,	Washington, Auburn, Delaware, Albany F. S., Albany F. A., Albany, Schenectady,	7
Chronology,	Whitesboro', Dutchess, Pompey,	3
Declamation,	In all, (except females,) as often on an average as once in 14 days	
Drawing,	Washington, Lowville, Auburn, Onondaga, Ontario F. S., Rochester, St. Lawrence, Yates, Oneida C. S., Albany F. A., Albany, Owego, Schenectady, Montgomery, Lansingburgh,	15
Dialling,	Albany,	1
English Grammar,	In all academies,	
Evidences of Christianity,	Delaware, Ontario F. S., Albany F. S., Oneida Ins., St. Lawrence, Oneida C. S., Albany F. A., (see title Nat. Theology,)	7
Engineering, Civil,	Ithaca, Rochester, Yates, Albany, Utica,	5
Extemporaneous speaking,	Washington, R. Oswego, Onondaga,	3
French language,	Canajoharie, U. Hall, Mt. Pleasant, Washington, Hamilton, Lowville, R. Oswego, Union, Auburn, Palmyra, Lewiston, Delaware, Cambridge W., Ontario F. S., Gaines, Springville, C. Valley, Bridgewater, Cortland, Albany F. S., Fredonia, Hartwick, Ithaca, Johnstown, Ovid, Monroe, Newburgh, Rochester, Pompey, St. Lawrence, Yates, Oneida C. S., Albany F. A., Granville, Albany, Clarkson, Hudson, Owego, Schenectady, Utica, Montgomery, Fairfield, Erasmus Hall, Middlebury, Canandaigua, Oxford,	46
Geography,	In all academies,	

Geography, Physical,	Clinton G. S., Albany,	2
Geology,	Washington, Bridgewater, Jefferson,	3
Geometry, Plane,	In all academies,	
Geometry, Analytic,	Utica, Oneida C. S.,	2
Greek language,	In all except 2, (Ontario F. S., Albany F. A.,)	
Grecian Antiquities,	Utica, Montgomery, Fairfield,	3
German language,	Hartwick, Oneida C. S.,	2
History, General,	In all academies,	
History, U. S.	Canajoharie, U. Hall, Mt. Pleasant, Washington, Lowville, R. Oswego, Whitesboro', Onondaga, Delaware, Springville, C. Valley, Albany F. S., Johnstown, Ovid, Yates, Albany F. A., Oysterbay, Albany, Owego, Hamilton, Auburn, Palmyra, Dutchess, Gaines, Bridgewater, Fredonia, F. Hall, Clinton, Hudson, Schenectady, Utica, Kingston, E. Hall, Oxford, Ontario F. S., N. Salem, St. Lawrence, Redhook, Granville, *Franklin M., Lansingburgh, Middlebury, Canandaigua, Cortland, Jefferson,	45
History N. Y.	Albany,	1
Hebrew language,	Hartwick, Oneida Ins., Oneida Con. S., Jefferson,	4
Italian language,	R. Oswego, Monroe, Oneida C. S., Oxford,	4
Latin language,	In all except Albany F. S. and Albany F. A.,	
Law, (Constitution,)	R. Oswego, Washington, Whitesboro', Palmyra, Delaware, Fredonia, Monroe, Redhook, Albany, Owego, Utica, Middlebury, Albany F. A., Granville, Mt. Pleasant,	15
" (select Rev. Statutes)	Washington,	1
" (crim. & mercantile,)	Washington, Utica, (see also Cons. U. S. and N. Y.)	2
Logic,	Washington, R. Oswego, Union, Whitesboro', Palmyra, Dutchess, Franklin P., Cortland, Albany F. S., Fredonia, Johnstown, Ovid, N. Salem, Rochester, St. Lawrence, Yates, Oneida C. S., Granville, Albany, Clarkson, Owego, Schenectady, Utica, Montgomery, Lansingburgh, Middlebury, Oxford, Canandaigua,	28
Levelling,	Albany, Oneida Ins.	2

*Franklin Acs. at Malone, Franklin Co. Franklin Acs. at Prattsburgh, Steuben Co. is represented by P. after its name.

Subjects of study.	*Academies in which the subjects are studied.*	*No.*
Logarithms,	Lowville, Onondaga, Oneida Ins., Yates, Granville,	5
Music,	Washington, Lowville, Whitesboro', Delaware, Ontario F. S., C. Valley, Bridgewater, Ovid, Monroe, Rochester, Yates, Oneida C. S., Albany F. A., (vocal,) Owego, Schenectady, (vocal and instrumental,) Montgomery, E. Hall, (vocal and instrumental,) Kinderhook,	18
Mapping,	Washington, Auburn, Utica, E. Hall, Fairfield,	5
Mensuration,	Washington, C. Gram. S., Union, Auburn, Onondaga, Dutchess, Oneida Ins., Pompey, Yates, Granville, Oysterbay, Hudson, Utica, Montgomery, Fairfield, Lansingburgh, Oxford, Canandaigua,	18
Mineralogy,	Rochester, Albany, Montgomery, Canandaigua, St. Lawrence, Jefferson,	6
Mythology,	Lewiston,	1
Natural History,	U. Hall, Mt. Pleasant, Washington, Auburn, Delaware, Ontario F. S., Albany F. S., Rochester, St. Lawrence, Yates, Albany F. A., Albany, Hudson, Owego, Utica, Oxford, C. Valley, Palmyra, Oysterbay,	19
Navigation,	Lowville, Whitesboro', Bridgewater, Oneida Ins., N. Salem, Yates, Albany, Clinton, Fairfield,	9
Nautical Astronomy,	Albany,	1
Natural Theology,	U. Hall, Mt. Pleasant, Auburn, Cortland, Albany F. S., Oneida Ins., N. Salem, St. Lawrence, Yates, Oneida C. S., Albany F. A., Schenectady, Oxford, Palmyra,	14
Orthography,	In all, since instructions of 1834, but with different degrees of attention,	
Philosophy, Natural,	In all,	
Philosophy, Moral,	Canajoharie, Mt. Pleasant, Washington, Lowville, R. Oswego, Union, Auburn, Palmyra, Delaware, Dutchess, Gaines, C. Valley, Albany F. S., Fredonia, Ithaca, Johns-	

	town, Oneida Ins., Monroe, Rochester, Pompey, St. Lawrence, Yates, Oneida C. S., Albany F. A., Granville, Clarkson, Franklin M., Owego, Schenectady, Utica, Montgomery, Lansingburgh, Oxford,	33
Philosophy, Intellectual,	Canajoharie, Mt. Pleasant, Washington, Hamilton, R. Oswego, Union, Whitesboro', Palmyra, Lewiston, Delaware, Ontario F. S., C. Valley, Cortland, Albany F. S., Fredonia, Ithaca, Monroe, N. Salem, Rochester, St. Lawrence, Oneida C. S., Albany S. A., Albany, Hudson, Owego, Schenectady, Montgomery, Kingston, Lansingburgh, Middlebury, Oxford, Canandaigua, Bridgewater, Dutchess, Franklin M., Jefferson,	36
Penmanship,	In all academies,	
Political Economy,	Dutchess, Albany,	2
Painting,	Onondaga, Monroe, Rochester, Yates, Oneida C. S., Albany F. A., Owego, Schenectady, Montgomery,	9
Perspective,	Albany,	1
Physiology,	Albany F. A., Kinderhook,	2
Pronunciation, English,	In all; (for standards, see schedule of text books, &c.)	
Reading,	In all; (for books generally used, see do)	
Rhetoric,	In all except 8, (Cambridge W., Fredonia, Oneida Ins., Newburgh, Oysterbay, Clinton, Franklin M., Fairfield,	
Roman Antiquities,	U. Hall, Mt. Pleasant, Clinton G. S., Palmyra, Delaware, Hartwick, Newburgh, Albany, Clinton, Utica, Montgomery, Kingston, Oxford, Oneida C. S., Farmers' Hall, Fairfield,	16
Stenography,	R. Oswego, Albany F. A.,	2
Statistics,	Utica,	1
Surveying,	Canajoharie, U. Hall, Washington, Clinton G. S., Hamilton, Lowville, R. Oswego, Union, Whitesboro', Auburn, Oonondaga, Palmyra, Lewiston, Delaware, Dutchess, Cambridge W., Franklin P., Gaines, Springville, C. Valley, Bridgewater, Cortland, Fredonia, Ithaca, Johnstown, Oneida Ins., Monroe, Newburgh, Rochester, Pompey, St. Lawrence, Yates, Oneida C. S., Redhood, Granville, F. Hall, Oysterbay, Albany, Clinton,	

No, 4—Continued.

Subjects of study.	*Academies in which the subjects are studied.*	*No.*
	Franklin M., Hudson, Utica, Montgomery, Fairfield, Kingston, Lansingburgh, Middlebury, Oxford, Canandaigua, Mt. Pleasant, Jefferson,	51
Spanish language,	Whitesboro', Palmyra, Ontario F. S., Oneida C. S., Middlebury, Canandaigua,	6
Trigonometry,	U. Hall, Canajoharie, Mt. Pleasant, Lowville, Auburn, Onondaga, Dutchess, Cambridge, Gaines, Albany F. S., Fredonia, Ithaca, Johnstown, Oneida Ins., Newburgh, Yates, Oneida C. S., Albany F. A., Granville, F. Hall, Oysterbay, Albany, Franklin M., Utica, Montgomery, Fairfield, Lansingburgh, Canandaigua,	28
Topography,	Oneida C. S., Utica,	2
Technology,	Albany F. S., Albany F. A., Albany,	3
Teaching, Principles of,	Washington, R. Oswego, Onondaga, St. Lawrence, Union, E. Hall, Montgomery, Kinderhook, Fairfield, Oxford, Canandaigua, Middlebury,	12

True abstract.

GIDEON HAWLEY,
Secretary of the University.

SCHEDULE No. 5.

Containing abstracts from Academic reports for 1835, *made to the Regents of the University, exhibiting the various text or class books used during said year, in the several academies from which such reports were received, on the different subjects of study pursued in said academies.*

Subjects of study.	*Books used.*	*Academies in which said books were used.*
Arithmetic,.....	Daboll,.....	Canajoharie, U. Hall, Mount Pleasant, Clinton G. S., Lowville, Auburn, Onondaga, Lewiston, Delaware, Dutchess, Gaines, C. Valley, Bridgewater, Hartwick, Johnstown, Newburgh, N. Salem, Redhook, Oysterbay, Albany, Clinton, Hudson, Kingston, Lansingburgh.—24.
	Colburn, ...	Canajoharie, Hamilton, Lowville, R. Oswego, Auburn, Onondaga, Palmyra, Delaware, Ontario F. S., Gaines, Springville, Cortland, Albany F. S., Fredonia, Ovid, Oysterbay, Owego, Schenectady, E. Hall, Lansingburgh, Middlebury, Oxford, Canandaigua.—23.
	Willett, ...	Dutchess, Gaines, Bridgewater, Monroe, Redhook, Kingston.—6.
	Smith, ...	Canajoharie, U. Hall, Auburn, Dutchess, Ontario F. S., Bridegwater, Albany F. S., Fredonia, Johnstown, Newburgh, Albany, Clarkson, Utica, Kingston, Lansingburgh, Canandaigua.—16.
	Emerson,....	Canajoharie, U. Hall, Washington, Lowville, Whitesborough, Auburn, Delaware, Dutchess, Ontario F. S., Cortland, Albany F. S., Ovid, Newburgh, Rochester, St. Lawrence, Albany F. A., Granville, Oysterbay, *Franklin, M., Hudson, Schenectady, Montgomery, E. Hall, Kinderhook, Oxford, Canandaigua, Jefferson.—27.
	Babcock, ...	Utica.

* Franklin Academy at Malone, Franklin county. Franklin Academy at Prattsburgh, Steuben county, is represented by P. after its name.

Subjects of study.	*Books used.*	*Academies in which said books were used.*
	Hasler,.....	Kingston.
	Ruger,.....	Lowville, R. Oswego, Union, Springville.—4.
	Adams, ...	Canajoharie, Washington, Clinton G. S., Hamilton, Lowville, R. Oswego, Whitesboro', Onondaga, Palmyra, Cambridge, Gaines, Springville, C. Valley, Cortland, Albany F. S., Fredonia, Johnstown, Ovid, Monroe, Pompey, St. Lawrence, Oneida, C. S., Redhook, Granville, Clinton, Owego, Schenectady, Montgomery, Fairfield, Lansingburgh, Middlebury, Oxford.—32.
	Parley, ...	Redhook, Jefferson.—2.
	Welch, ...	Gaines.
	Ostrander,...	Canajoharie, Ovid.—2.
	Pike, ...	Washington, Lowville, Monroe, St. Lawrence.—4.
	Davies, ...	Ithaca, Newburgh, Rochester, Yates.—4.
Algebra,.....	Day, ...	Canajoharie, U. Hall, Mt. Pleasant, Washington, Clinton G. S., Hamilton, Lowville, R. Oswego, Union, Whitesborough, Auburn, Onondaga, Palmyra, Lewiston, Delaware, Dutchess, Gaines, Springville, C. Valley, Bridgewater, Cortland, Fredonia, Ithaca, Johnstown, Ovid, Oneida Ins., Monroe, Newburgh, N. Salem, Rochester, Pompey, St. Lawrence, Yates, Albany F. A., Granville, F. Hall, Oysterbay, Clarkson, Clinton, Franklin, M., Hudson, Owego, Schenectady, Utica, Montgomery, Fairfield, Kingston, Lansingburgh, Middlebury, Oxford, Canadaigua, Jefferson.—52.
	Colburn, ...	Clinton G. S., Lowville, Auburn, Onondaga, Dutchess, Ontario F. Sem., Springville, Cortland, Fredonia, Johnstown, Newburgh, Yates, F. Hall, Franklin, M., Schenectady, Utica, Fairfield, Middlebury, Canandaigua.—19.
	Bourdon,....	Washington, Cambridge, Hartwick, Hudson, Montgomery, Fairfield.—6.

	Young, ...	Auburn, Utica, Fairfield.—3.
	Hamilton, ...	Johnstown.
	Lacroix, ...	Lansingburgh.
	Bonnycastle,.	Canajoharie, Dutchess, Johnstown, Monroe, Oysterbay, Albany, Utica, Fairfield, E. Hall, Lansingburgh, Jefferson.—11.
	Bailey,.....	Dutchess, Oswego.—2.
	Ryan, ...	U. Hall, Newburgh, Oysterbay, Clarkson, Utica, Fairfield, Canandaigua.—7.
	Euler, ...	Johnstown, Albany.—2.
	Smyth,.....	R. Oswego, Oneida C. S.—2.
Astronomy, ...	Herschel, ...	Albany, Schenectady, Lansingburgh.—3.
	Ferguson, ...	Ontario F. S., St. Lawrence, Lansingburgh, Canandaigua.—4.
	Ryan,.....	Bridgewater, Monroe, Clinton, Lansingburgh, Middlebury.—5.
	Fowle, ...	Dutchess.
	Blair,.....	Mt. Pleasant.
	Ostrander,...	Canajoharie, Dutchess, Ontario F. S., Ovid, Yates, Oneida C. S., Montgomery, Lansingburgh, Oxford.—9.
	Guy,.....	Palmyra, Albany F. S., Albany F. A.—3.
	Blake, ...	Washington, Auburn, Onondaga, Lewiston, Monroe, Newburgh, Franklin, M., Utica, Montgomery, E. Hall.—10.
	Keith, ...	Albany F. A., Utica.—2.
	Vose,.....	Ovid.
	Ewing, ...	Utica.
	Wilkin, ...	Onondaga, Ontario F. Sem., Fredonia, St. Lawrence, Granville, Owego, Canandaigua.—7.
	Burritt, ...	Mt. Pleasant, Hamilton, R. Oswego, Union, Whitesboro', Auburn, Onondaga, Palmyra, Delaware, Johnstown, Ovid, N. Salem, Oneida C. S., Oysterbay, Hudson, Owego, Schenectady, Kingston, Oxford.—19.
Botany, ...	Lincoln,.....	Hamilton, Whitesboro', Auburn, Onondaga, Palmyra, Delaware, Ontario F. Sem.,

Subjects of study.	*Books used.*	*Academies in which said books are used.*
		Cortland, Albany F. S., Fredonia, Rochester, Pompey, St. Lawrence, Albany F. A., Granville, Clarkson, Clinton, Schenectady, Kingston.—19.
	Beck, ...	Albany F. A., Albany F. S.—2.
	Comstock, ...	Lewiston, Monroe, Oxford, Jefferson.—4.
	Phelps, ...	Dutchess, Springville, Owego.—3.
	Eaton, ...	Auburn, Onondaga, Ontario F. S., Cortland, Fredonia, Rochester, Oneida C. S., Albany F. A., Schenectady, Jefferson.—10.
	Bigelow, ...	Jefferson.
	Parley, ...	Auburn, Palmyra, Ontario F. S.—3.
Book-keeping, ...	Bennett, ...	U. Hall, Mt. Pleasant, Washington, Lowville, Union, Auburn, Onondaga, Lewiston, Delaware, Dutchess, Johnstown, Monroe, N. Salem, Rochester, St. Lawrence, Granville, F. Hall, Oysterbay, Schenectady, Utica, Montgomery, Kingston, Lansingburgh.—23.
	Willett, ...	Dutchess.
	Hitchcock, ...	Clarkson.
	Preston, ...	R. Oswego, Whitesboro', Auburn, Onondaga, Palmyra, Dutchess, Ontario F. Sem., Springville, Cortland, Fredonia, St. Lawrence, Redhook, Granville, Albany, Hudson, Owego, Montgomery, Canandaigua.—18.
Chemistry, ...	Comstock, ...	Canajoharie, Washington, Clinton G. S., Lowville, R. Oswego, Union, Auburn, Onondaga, Palmyra, Lewiston, Delaware, Franklin, P., Ontario F. S., Gaines, Springville, C. Valley, Bridgewater, Cortland, Fredonia, Ithaca, Ovid, Monroe, Newburgh, Rochester, Pompey, St. Lawrence, Yates, Oneida C. S., Granville, F. Hall, Clarkson, Clinton, Schenectady, Utica, Montgomery, Lansingburgh, Middlebury,

		Canandaigua, Jefferson—39.
	Jones, ...	Canajoharie, Dutchess, Albany F. S., Hartwick, St. Lawrence, Owego, Montgomery—7.
	Turner, ...	Fredonia, Utica, Canandaigua—3.
	Silliman, ...	St. Lawrence.
	Blake, ...	Washington, R. Oswego, Auburn, Dutchess, Ovid, Kingston, Oxford—7.
	Webster, ...	St. Lawrence.
	Beck, ...	Mt. Pleasant, Hamilton, Albany F. A., Albany, Fairfield—5.
	Bryan, ...	Lansingburgh.
	Eaton, ...	Onondaga, St. Lawrence, Canandaigua—3.
	Phelps, ...	Whitesboro'.
	Grund, ...	Canajoharie.
Composition, ...	Parker, ...	R. Oswego, Dutchess, Springville, Albany F. S., Fredonia, N. Salem, Kinderhook, Albany, Oxford, Canandaigua, Jefferson—11.
	Walker, ...	Albany F. S., Canandaigua—2.
Conic sections, ...	Dutton, ...	Utica.
	Bridge, ...	Cambridge.
	Day, ...	Utica.
Constitution U. S..	Duer, ...	Mt. Pleasant, Palmyra, Fredonia, Albany F. A., Granville, Utica—6.
	Sullivan, ...	Delaware, Monroe, Owego—3.
	Yates, ...	Whitesboro', Utica—2.
	Story, ...	Mt. Pleasant, Palmyra—2.
Constitution N. Y..	Yates, ...	Whitesboro'.
Criticism, ...	Kames, ...	In all the academies in which this was made a subject of study.
English language, (Grammar.)	Murray, ...	Canajoharie, U. Hall, Mt. Pleasant, R. Oswego, Whitesboro', Auburn, Palmyra, Dutchess, Bridgewater, Newburgh, N. Salem, St. Lawrence, Redhook, Albany, Clinton, Franklin, M., Hudson, Schenectady, Fairfield, Lansingburgh—20.
	Kirkham, ...	Canajoharie, Washington, Clinton G. S., Hamilton, Lowville, R. Oswego, Union,

Subjects of study.	*Books used.*	*Academies in which said books were used.*
		Whitesboro, Auburn, Onondaga, Lewiston, Dutchess, Springville, Cherry-Valley, Bridgewater, Fredonia, Hartwick, Johnstown, Monroe, Newburgh, Pompey, Yates, Oneida C. S., Albany F. A., Granville, F. Hall, Schenectady, Utica, Kingston, E. Hall, Lansingburgh, Middlebury, Oxford—33.
	Pickett, ...	St. Lawrence.
	Merchant, ...	Dutchess.
	Brown,.....	U. Hall, Ontario F. S., Gaines, Cortland, Ithaca, Ovid, Rochester, St. Lawrence, Clarkson, Owego, Montgomery, Oxford—12.
	Smith, ...	Canajoharie, Mt. Pleasant, Lewiston, Delaware, Bridgewater, Albany F. S., Fredonia, Albany F. A., Franklin M., Hudson, Owego, Utica, Montgomery, Lansingburgh—14.
	Webster,....	St. Lawrence, Owego, Lansingburgh—3.
	Greenleaf, ...	Redhook, Schenectady—2.
	Bullions, ...	Mt. Pleasant, Washington, Cambridge, Albany F. A., Albany—5.
	Flint, ...	Jefferson.
	Bethune, ...	E. Hall.
	Putman, ...	Canajoharie.
English language, (Dictionary.)	Webster,....	Palmyra, Delaware, Gaines, Cortland, Albany F. S., Pompey, Clarkson, Owego, E. Hall, Jefferson—10.
	Walker,.....	Dutchess, Ithaca, Monroe, Rochester, Franklin M.—5.
	Webster and Walker,...	Canajoharie, U. Hall, Washington, Lowville, R. Oswego, Auburn, Onondaga, Bridgewater, Ovid, N. Salem, St. Lawrence, Albany F. A., F. Hall, Albany—14.
	Worcester, ..	Rochester, Franklin M., Utica—3.

	Cobb, ...	Owego.
	Cobb's Walker,	Oxford.
Evidences of Christianity,	Alexander, ..	Delaware, St. Lawrence, Albany F. A.—3.
	Blake,.....	Albany F. S.
	Paley,.....	Ontario F. S.
	Wilson,.	Oneida C. S.
French language, (Grammar.)	Bolmar, ...	Washington, Hamilton, Auburn, Fredonia, Montgomery—5.
	Levizac, ...	Canajoharie U. Hall, Hamilton, Lowville, R. Oswego, Union, Auburn, Palmyra, Lewiston, Delaware, Cambridge, Springville, C. Valley, Bridgewater, Cortland, Fredonia, Hartwick, Johnstown, Ovid, Pompey, St. Lawrence, Yates, Oneida C. S., Granville, Hudson, Owego, Schenectady, Utica, Montgomery, Fairfield, Middlebury, Oxford—32.
	Bauf, ...	Mt. Pleasant, Albany, Clarkson—3.
	Perrin,.....	Cortland, Newburgh, Schenectady—3.
	Noel & Chaptal,	Albany F. A., Albany—2.
	L'Homond, ..	Clarkson.
	Wanostrocht,	Washington, Ontario F. S., Ithaca, Monroe, Rochester, Granville, Canandaigua—7.
	Manesca,....	Albany F. S.
	Dufief,.....	Ontario F. S., Bridgewater, Canandaigua—3.
Geography, ...	Olney, ...	Canajoharie, U. Hall, Mt. Pleasant, Washington, Clinton G. S., Hamilton, Lowville, R. Oswego, Union, Whitesboro', Auburn, Onondaga, Palmyra, Lewiston, Delaware, Dutchess, Cambridge, Ontario F. S., Gaines, Springville, C. Valley, Bridgewater, Cortland, Albany F. S., Fredonia, Hartwick, Ithaca, Johnstown, Ovid, Monroe, Newburgh, N. Salem, Rochester, Pompey, Yates, Redhook, Albany F. A., F. Hall, Oysterbay, Albany, Clinton, Franklin M., Hudson, Owego, Schenectady, Montgomery, Kingston, Lansingburgh, Middlebury—49.
	Hart, ...	Albany F. A., Albany—2.
	Woodbridge,	Canajoharie, Mt. Pleasant, Washington, Clinton G. S., R. Oswego, Auburn, Bridge-

Subjects of study.	*Books used.*	*Academies in which said books were used.*
		water, Cortland, Hartwick, Johnstown, Pompey, St. Lawrence, F. Hall, Oysterbay, Albany, Schenectady, Fairfield, E. Hall, Lansingburgh, Oxford, Canandaigua—21.
	Parley, ...	Canajoharie, U. Hall, Lowville, R. Oswego, Auburn, Onondaga, Johnstown, St. Lawrence, Redhook, Albany F. A., F. Hall, Owego, E. Hall, Canandaigua, Jefferson, —15.
	Woodbridge and Willard,	U. Hall, Washington, Whitesboro', Palmyra, Albany F. S., Fredonia, Johnstown, Franklin M., Owego, Kingston, Jefferson—11.
	Maltebrun, ..	Canajoharie, Clinton G. S., Lowville, Whitesboro', Auburn, Onondaga, Lewiston, Delaware, Dutchess, Cortland, Albany F. S., Johnstown, Ovid, N. Salem, Rochester, Pompey, Oneida C. S., Redhook, Albany F. A., Granville, Hudson, Schenectady, Middlebury, Jefferson—24.
	Goodrich, ...	N. Salem, Rochester, Albany, Clarkson, Utica—5.
	Morse, ...	Oysterbay.
	Smith, ...	Lewiston, Dutchess, Albany F. S., Albany, Montgomery—5.
	Hall, ...	Gaines, Franklin M., Canandaigua—3.
	Lebrun, ...	Ontario F. S.
	Worcester, ..	Newburgh, Utica—2.
Geography, Physical,	Woodbridge,	Clinton G. S., Schenectady—2.
	Comstock, ...	Bridgewater, Jefferson—2.
Geology, ...	Eaton, ...	Washington.
Geometry, Plane,	Playfair, ...	Canajoharie, Clinton G. S., R. Oswego, Whitesboro', Auburn, Onondaga, Palmyra, Lewiston, Delaware, Springville, Cortland, Albany F. S., Ithaca, Johnstown, Ovid,

		Oneida Ins., Newburgh, Pompey, Albany F. A., Granville, F. Hall, Albany, Clinton, Owego, Schenectady, Montgomery, Kingston, E. Hall, Lansingburgh, Middlebury, Canandaigua—31.
	Simpson, ...	Auburn, Albany F. A., Jefferson—3.
	Legendre, ...	Canajoharie, U. Hall, Washington, Clinton G. S., Hamilton, Lowville, R. Oswego, Union, Onondaga, Delaware, Dutchess, Cambridge, Ontario F. S., C. Valley, Bridgewater, Cortland, Fredonia, Hartwick, Ithaca, Johnstown, Rochester, St. Lawrence, Yates, Oneida C. S., Clarkson, Owego, Schenectady, Montgomery, Fairfield, Lansingburgh, Oxford, Canandaigua—32.
	Ryan, ...	U. Hall, Jefferson—2.
	Grund, ...	Gaines, Rochester, Franklin M.—3.
	Walker, ...	Onondaga, Dutchess, Cortland, Monroe, Rochester—5.
	Holbrook, ...	Palmyra, Albany F. A.—2.
Geometry, Analytic	Cambridge ed.	Oneida C. S.
Greek language, (Grammar.)	Goodrich, ...	Canajoharie, U. Hall, Washington, Clinton G. S., Hamilton, Lowville, R. Owego, Union, Whitesboro', Auburn, Onondaga, Palmyra, Delaware, Dutchess, C. Valley, Bridgewater, Cortland, Hartwick, Johnstown, Ovid, N. Salem, Pompey, St. Lawrence, Yates, Redhook, Granville, F. Hall, Clarkson, Clinton, Franklin M., Hudson, Owego, Schenectady, Montgomery, Fairfield, E. Hall, Lansingburgh, Oxford, Canandaigua—39.
	Valpy, ...	Canajoharie, U. Hall, Lowville, R. Oswego, C. Valley, Ithaca, Monroe, Newburgh, F. Hall, Oysterbay, Kingston, Middlebury—12.
	Fisk, ...	Lowville, R. Oswego, Hartwick, Oneida Ins., Oneida C. S. Redhook, Montgomery, Fairfield—8.
	Bullions, ...	Mt. Pleasant, Johnstown, Albany, Fairfield, Lansingburgh—5.
	Anthon's Valpy,	Onondaga, Springville, Hartwick, Utica, Jefferson—5.
	Butman, ...	Clinton G. S., Fredonia, Oneida C. S.—3.
	Moor, ...	Gaines, Hartwick, Rochester—3.

Subject of Study.	*Books used.*	*Academies in which said books were used.*
		[Goodrich's Greek Exercises, Jacob's Gr. Reader, Græca Majora, and Schevelius', Grooe's, and Donegan's Lexicons, are generally used.]
Grecian Antiquities,	Potter, ...	Utica, Montgomery, Fairfield—3.
History, General, .	Wells, ...	Newburgh.
	Worcester, ..	Auburn, Albany F. S., St. Lawrence, Albany F. A., F. Hall, Utica, Montgomery, Oxford, Canandaigua—9.
	Tytler, ...	Canajoharie, Clinton G. S. Hamilton, R. Oswego, Union, Auburn, Onondaga, Lewiston, Delaware, Gaines, Springville, Bridgewater, Albany F. S., Hartwick, Ithaca, Ovid, N. Salem, Redhook, Albany, Hudson, Schenectady, Montgomery, Kingston, Lansingburgh, Oxford—25.
	Whelpley,...	U. Hall, Palmyra, Ontario F. S., Gaines, Springville, Fredonia, Monroe, St. Lawrence, Yates, Redhook, Granville, Clinton, E. Hall—13.
	Robbins,.....	N. Salem, Owego, Schenectady, Canandaigua—4.
	Rollin,.....	Ontario F. S.
	Parley, ...	U. Hall, Mt. Pleasant, R. Oswego, Auburn, Cherry-Valley, Fredonia, St. Lawrence, Franklin M., Owego, E. Hall—10.
	Irving's Catechism,	Albany, Kingston—2.
History U. S.	Grimshaw, ..	U. Hall.
	Hale, ...	Canajoharie, Mt. Pleasant, Hamilton, Lowville, R. Oswego, Whitesboro', Auburn, Onondaga, Palmyra, Delaware, Dutchess, Gaines, C. Valley, Bridgewater, Fredonia, Ovid, Yates, F. Hall, Oysterbay, Albany, Clinton, Hudson, Owego, Schenectady, Utica, Kingston, E. Hall, Oxford, Jefferson—29.
	Davenport, ..	Dutchess.

	Goodrich,....	Onondaga, Dutchess, Ontario F. S., Albany F. S., Johnstown, N. Salem, St. Lawrence, Redhook, Granville, Franklin M., Lansingburgh, Middlebury, Canandaigua—13.
	Parley, ...	Mt. Pleasant, Ontario F. S., Ovid—3.
	Robertson, ..	Ontario F. S.
	Willard, ...	Washington, R. Oswego, St. Lawrence, Albany F. A., Oysterbay, Schenectady, Oxford—7.
	Botta, ...	Ontario F. S.
	Webster,....	Cortland, Canandaigua—2.
History N. Y.....	Eastman,....	Albany.
Latin language, (Grammar.)	Adams',	In all the academies in which the Latin language is studied, one or both of these is used.
	Do Gould's edition,	
	Fisk, ...	Onondaga.
	Patterson, ...	Onondaga, Bridgewater. [Ainsworth's Dictionary, Jacob's Lat. Reader, Cooper's Virgil, and Anthon's Sallust, are generally used.]
Logic, ...	Hedge,.....	Washington, R. Oswego, Whitesboro', Palmyra, Johnstown, Ovid, N. Salem, Rochester, St. Lawrence, Yates, Oneida C. S., Granville, Albany, Clarkson, Owego, Schenectady, Utica, Montgomery, Lansingburgh, Middlebury, Oxford, Canandaigua—22.
	Jameson, ...	Cortland, Albany F. S.—2.
	Watts, ...	Washington, Union, Dutchess—3.
	Whately,....	Fredonia, Utica—2.
Mensuration, ...	Ryan, ...	Oysterbay.
	Day, ...	Washington, Clinton G. S., Union, Auburn, Onondaga, Yates, Granville, Utica, Montgomery, Fairfield, Oxford—11.
	Bonnycastle,	Utica.
	Hutton, ...	Auburn, Onondaga—2.

Subjects of study.	*Books used.*	*Academies in which said books were used.*
	Ostrander, ...	Pompey.
	Pike, ...	Washington.
Mineralogy, ...	Cleaveland, ..	St. Lawrence, Canandaigua—2.
	Comstock, ...	Rochester, Montgomery—2.
	Emmons, ...	Albany.
Natural History,..	Smellie, ...	Delaware, C. Valley, Albany F. S., Rochester, St. Lawrence, Albany F. A., Albany, Owego, Oxford—9.
	Goldsmith, ...	Yates, Utica—2.
	Trimmer, ...	Auburn, Palmyra, Albany F. S., Oysterbay—4.
	Comstock, ...	Washington.
	Parley, ...	Auburn.
Navigation, ...	Bowditch, ...	Lowville, Whitesboro', N. Salem, Yates, Clinton—5.
	Day, ...	Bridgewater, Fairfield—2.
Natural Theology,.	Paley, ...	Mount-Pleasant, Auburn, Palmyra, Cortland, Albany F. S., N. Salem, St. Lawrence, Yates, Oneida C. S. Albany F. A., Schenectady, Oxford—12.
	Butler, ...	Albany F. S., Oneida Ins., Oneida C. S.—3.
Orthography, ... (Spelling-Books.)	Webster, ...	Canajoharie, Washington, Clinton G. S., Lowville, R. Oswego, Onondaga, Palmyra, Delaware, Gaines, Bridgewater, Cortland, N. Salem, Pompey, St. Lawrence, Albany F. A., F. Hall, Oysterbay, Clinton, Owego, Kingston, E. Hall, Lansingburgh—22.
	Cobb, ...	U. Hall, Washington, Lowville, Union, Onondaga, C. Valley, Fredonia, Ithaca, Ovid, Granville, Oysterbay, Franklin, M. Owego, Utica, Oxford—15.
	Emerson, ...	Monroe.

	Pickett, ...	F. Hall, Oysterbay—2.
	Bentley, ...	Dutchess.
	Williams,....	Hamilton.
	Hazen,.....	Hamilton, Lowville, Auburn, Lewiston, Fredonia, Albany—6.
	Bolles, ...	Auburn, (See title English Language, Dictionary.)
Philosophy, Nat. ..	Comstock, ...	Washington, Clinton G. S., Hamilton, Lowville, R. Oswego, Union, Auburn, Onondaga, Palmyra, Delaware, Cambridge, Franklin P., Ontario F. S., Gaines, Springville, Bridgewater, Cortland, Fredonia, Ithaca, Ovid, Monroe, N. Salem, Rochester, Pompey, St. Lawrence, Yates, Oneida C. S., Granville, F. Hall, Clarkson, Clinton, Schenectady, Utica, Montgomery, Lansingburgh, Middlebury, Oxford, Canandaigua, Jefferson—39.
	Olmsted, ...	Whitesboro', Cortland, Albany F. S., Oneida Ins., Rochester, Utica, Fairfield, Lansingburgh, Canandaigua—9.
	Bolman,.....	Washington.
	Blake, ...	Canajoharie, Washington, R. Oswego, Auburn, Lewiston, Dutchess, Gaines, C. Valley, Albany F. S., Johnstown, Ovid, Monroe, N. Salem, Rochester, Redhook, Albany F. A., Granville, Hudson, Schenectady, Montgomery, Kingston—21.
	Cambridge, ..	Albany.
	Jones, ...	Canajoharie, Dutchess, Bridgewater, Hartwick, Newburgh, St. Lawrence, Owego—7.
	Blair, ...	Mount-Pleasant, Hamilton, Johnstown, Ovid, Fairfield—5.
	Bryan, ...	Clinton G. S., Franklin M., Fairfield, Lansingburgh—4.
	Arnott, ...	Delaware, Albany F. S., Albany F. A.—3.
Philosophy, Moral,	Paley, ...	Canajoharie, Mt. Pleasant, Washington, Lowville, R. Oswego, Union, Auburn, Dutchess, Gaines, C. Valley, Fredonia, Johnstown, Monroe, Pompey, St. Lawrence, Yates, Oneida C. S.: Albany F. A., Granville, Clarkson, Owego, Utica, Lansingburgh, Oxford—24.
	Payne,.....	St. Lawrence, Albany F. A.—2.
	Abercrombie,.	Mt. Pleasant, Delaware, Albany F. S., Ithaca, Schenectady, Lansingburgh—6.

Subjects of study.	*Books used.*	*Academies in which said books were used.*
	Wayland, ...	Oneida Ins., Montgomery—2.
	Dymond, ...	Palmyra.
	Wardlaw, ...	Montgomery.
Philosophy, Intel. .	Abercrombie,	Mt. Pleasant, Hamilton, R. Oswego, Whitesboro', Delaware, C. Valley, Bridgewater, Cortland, Albany F. S., Fredonia, Ithaca, Monroe, Rochester, St. Lawrence, Albany, Hudson, Owego, Schenectady, Montgomery, Kingston, Lansingburgh, Oxford, Canandaigua—23.
	Payne, ...	St. Lawrence, Albany F. A.—2.
	Locke, ...	N. Salem.
	Stewart, ...	C. Valley, Canandaigua—2.
	Upham, ...	Union, Palmyra, Ontario F. S., Oneida C. S.—4.
	Watts, ...	Canajoharie, Washington, Palmyra, Lewiston, Delaware, Dutchess, Bridgewater, Albany F. S., Rochester, St. Lawrence, Owego, Franklin M., Kingston, Canandaigua, Jefferson—15.
Pronunciation, ...	Walker, ...	Union, Ithaca, Rochester, Redhook, Albany F. A., Granville, Oxford—7.
(Standards,)	Webster, ...	Delaware, Gaines, Lansingburgh—3.
	Walk.&Webs.	Canajoharie, Washington, Hamilton, Lowville, Auburn, Onondaga, Schenectady, Fairfield—8.
	Worcester, ..	Utica.
Reading, ...	Bible, ...	Washington, R. Oswego, Dutchess, Ontario F. S., Oysterbay, Clarkson, Franklin M., Kingston, E. Hall, Oxford, Jefferson—11.
	Murray, ...	Canajoharie, Clinton G. S., Lowville, R. Oswego, Union, Auburn, Dutchess, Bridgewater, Cortland, Ithaca, Johnstown, Ovid, Newburgh, N. Salem, St. Lawrence,

		Clinton, E. Hall, Lansingburgh, Oxford—19.
	Porter, ...	Auburn, Fredonia, St. Lawrence, Redhook, Albany, Clarkson, Owego, Schenectady, Montgomery, Lansingburgh, Kinderhook, Middlebury—12.
	Irv. Columbus	Canajoharie, U. Hall, Hamilton, Onondaga, St. Lawrence, Yates, Albany, Fairfield, Kingston, Lansingburgh, Canandaigua—11.
	Milton, ...	Lowville, Jefferson—2.
	Pollock, ...	Lowville, Jefferson—2.
	N. Testament	Washington, Lowville, Auburn, Delaware, Johnstown, St. Lawrence, Redhook, Albany F. A., Utica—9.
	B. Remarker,	Washington, Lansingburgh, Jefferson—3.
	Pierpont, ...	Monroe, Albany, Franklin M., Utica, Canandaigua—5.
	History U. S.	Canajoharie, Lowville, Onondaga, Delaware, Utica—5.
Rhetoric, ...	Blair, ...	Canajoharie, Washington, Clinton G. S., Hamilton, Lowville, R. Oswego, Union, Whitesboro', Auburn, Delaware, Dutchess, Franklin P., Gaines, Springville, C. Valley, Bridgewater, Hartwick, Ithaca, Ovid, N. Salem, Rochester, Pompey, St. Lawrence, Yates, Granville, Hudson, Utica, Montgomery, Kingston, E. Hall, Lansingburgh, Oxford, Canandaigua—33.
	Newman, ...	Canajoharie, Palmyra, Ontario F. S., Rochester, Oneida C. S., Albany F. A., Granville, Clarkson, Middlebury, Canandaigua—10.
	Jamieson, ...	Washington, Albany F. S., N. Salem, Pompey, Albany, Owego, E. Hall, Jefferson—8.
	Mills, ...	Johnstown, Schenectady, Oxford—3.
	Whately, ...	Utica, Montgomery—2.
Roman Antiquities,	Adams, ...	Clinton G. S., Delaware, Hartwick, Oneida C. S., F. Hall, Albany, Utica, Fairfield, Oxford—9.
	Kennett, ...	Montgomery.
	Dilloway, ...	U. Hall.
	Irving's Ct'm,	Palmyra, Albany, Kingston—3.
Stenography, ...	Gould, ...	R. Oswego.

Subjects of study.	*Books used.*	*Academies in which said books were used.*
Surveying, ...	Gummere, ...	U. Hall, Palmyra, Lewiston, Delaware, Dutchess, Cambridge, Cortland, Monroe, F. Hall Oysterbay, Clinton, Utica, Montgomery—13.
	Flint, ...	Canajoharie, U. Hall, Mt. Pleasant, Clinton G. S., Hamilton, Lowville, R. Oswego, Union, Whitesboro', Auburn, Onondaga, Palmyra, Springville, C. Valley, Bridgewater, Cortland, Fredonia, Johnstown, Monroe, Newburgh, Rochester, Pompey, St. Lawrence, Yates, Redhook, Granville, F. Hall, Franklin M., Hudson, Utica, Montgomery, Fairfield, Kingston, Lansingburgh, Middlebury, Oxford, Canandaigua, Jefferson—38.
	Gibson, ...	Mt. Pleasant, Washington, Auburn, Onondaga, Delaware, Dutchess, C. Valley, Bridgewater, Cortland, Ithaca, F. Hall, Oysterbay, Albany, Franklin M., Lansingburgh, Middlebury, Canandaigua—17.
	Ryan's Gibson	R. Oswego, Onondaga, Dutchess—3.
	Day, ...	Dutchess, Fairfield—2.
	Davies, ...	Rochester.
	Jess, ...	Dutchess.
Trigonometry, ...	Lacroix, ...	U. Hall, Albany—2.
	Flint, ...	Canajoharie, Lewiston, Onondaga, Canandaigua—4.
	Legendre, ...	Cambridge, Fredonia, Ithaca, Yates—4.
	Webber, ...	Utica.
	Playfair, ...	Auburn, Albany F. S., Albany F. A., Canandaigua—4.
	Cambridge, ..	Johnstown, Oneida C. S.—2.
	Day, ...	Onondaga, Granville, Utica, Fairfield—4.
	Young, ...	Utica.

	Brewster, ...	Fairfield.
	Hassler, ...	Utica.
	Simpson, ...	Auburn.
Technology, ...	Bigelow, ...	Albany F. S., Albany F. A., Albany—3.
Teaching, Princi. of	Hall, ...	R. Oswego, Union, St. Lawrence—3.
	Abbott, ...	St. Lawrence.
	Taylor, ...	St. Lawrence.

True abstract.

GIDEON HAWLEY,
Secretary of the University.

SCHEDULE No. 6,

Containing extracts from the remarks submitted by the Trustees of several Academies, in their reports to the Regents of the University for the year 1835, *on the peculiar modes of instruction adopted by them, and on other special matters, relative to such Academies.*

FIRST DISTRICT.

UNION-HALL ACADEMY.—*Emulation.*—The principle of emulation in teaching is now discarded. The student is invited to seek knowledge for its own sake. The annoying practice of changing places during a recitation is thus done away with. If, during a recitation, a student makes any correction, he has the approbation of the teacher and himself. No prizes have been given for some years. If all minds were endowed with equal capacities, without any particular inclination for certain studies, and if all students in the same class entered on the subjects of study with the same degree of knowledge, then premiums might be less objectionable.

Rewards for good behaviour also are not without their difficulties. The constitutional temperament of some, and the domestic education of others, render the line of good conduct not equally attainable by all. Premiums, as well as a rigid system of discipline, may reduce the *body* of the student to habits of Pythagorean obedience and docility; yet what do they avail, if the *mind* has not been reached and subdued.

Examination questions.—Question books are generally used in this institution, when good ones can be obtained. They are supposed to economize time, and direct the student's attention to the more essential portions of his lesson. Nothing but an enlightened experience can render the labor of forming extempore questions from text books thorough and successful. That the student may not run over the responses to his questions by rote, it is intended that he shall be *again* questioned on the answers he may give. The subject matter of the recitation should be broken up into analogies; so that while the questions lead the student to learn his lesson in detail, the teacher may enable him to conceive of it as a whole.

Is it not a defect in our question books, that they are confined to minute questions on the particulars of the subjects of study, so that though the student may be master of a great and undigested mass of facts, yet he may not be able to avail himself of those facts, from an ignorance of their relation and dependency? A few leading and general questions would enable the student to comprehend the scope of any treatise at a moment's thought, and assist him to view it in its different bearings, while another series of questions might lead him over the same in its minutest ramifications.

SECOND DISTRICT.

DELAWARE ACADEMY.—*Elementary studies.*—All the students are exercised in reading and spelling each day. All errors in pronunciation are carefully noticed and corrected, not only those that occur during the regular exercies of reading and declamation, but such also as occur in the ordinary recitations of the scholars, and in their daily intercourse with the teachers.

New departments, &c.—The principal has introduced, during the past year, the study of instrumental and vocal music. The theory of music is taught, and such of the students as are willing to pay a small extra charge, are exercised in singing at regular times. The result has been, that, without interfering with the other studies, a class of young gentlemen and ladies have learned to sing, and now form an excellent choir. The devotional exercises of each day are accompanied by singing.

A course of chemical lectures was delivered during the last term, which was attended by a large proportion of the students.

The academy has been gaining in influence and standing during the last year, and the number of students during the last term has been greater than during any previous term since the establishment of the institution.

About 20 students, who have been members of the academy during the year, are engaged in teaching common schools.

FARMER'S HALL ACADEMY.—*Elementary studies.*—Every scholar in the academy, as well classical as others, is required, as often as once in a week, to attend to reading, writing and spelling. Students define words in connexion with spelling and reading.

NORTH-SALEM ACADEMY.—The business of teaching has been prosecuted during the past year with great zeal and industry, and with results highly satisfactory, in promoting among the students assiduity of application, and securing an elevated tone of scholarship. While the higher branches of education have engrossed the chief attention, the elementary studies have been constantly and systematically prosecuted, and critical accuracy in them has been inculcated as the necessary foundation and the indispensable requisite of practical scholarship. In the prosecution of this department of instruction, the scholars are exercised in reading and orthography as often as three times each week. These exercises are accompanied by critical inquiries and remarks, calculated to bring into view and illustrate the rules of orthography, derivation and pronunciation, and indeed all the principles which compose the philosophy of written and spoken language.

In all the departments of instruction, it is made the principal aim to exercise the sagacity and improve the inventive faculty of the pupil, by proposing such questions and adopting such modes of recitation, as shall throw the pupil upon his own resources to communicate the knowledge acquired from the lesson under discussion, at the same time carefully guarding against overtaxing and thereby discouraging his efforts. Free and patient oral instruction is found

to be the most effectual means of stimulating the efforts and aiding the progress of pupils; and the practice of leading them by inquiries and indirect remarks, to see and correct their own errors and inadvertencies, is found far more conducive to their improvement than more brief dictation.

In imparting instruction in the Latin and Greek classics, the hearing of students read, translate and analyze the grammatical construction of the text, constitutes but a small part of the teacher's task. Allusions to ancient customs, mythological superstitions and philosophical theories, are freely discussed; idiomatical expressions illustrated by introducing comparisons of idioms of different languages, and the peculiar beauties of each author remarked, with a view to enlist the student's interest, and render his task inviting.

Students in Natural Philosophy and Mathematics are required to demonstrate propositions on the black board, and constant exertion is made, by simple manipulations, to exhibit to them occular illustrations. In the study of Physical and Descriptive Astronomy, we use Burrett and Comstock, and accompany our instruction with actual observations. We consider Burritt's Geography and Atlas of the Heavens, decidedly the best manual we have seen for affording interest and practical instruction in this department of study.

The great point to be attained by students, in order to prosecute with facility the study of Arithmetic, is a habit of understanding accurately and definitely its technicalities. As an effectual means of aiding them in this requisition, we require them, on the recitation seat, to relate minutely the process for obtaining the true result of each example in the lesson, promptly correcting, in their narration, every deviation from arithmetical propriety and accuracy. They are thus taught to talk and think in the language of Arithmetic. We have hitherto used Daboll as a text book, but intend, as soon as practicable, to introduce Emerson's North-American Arithmetic, being convinced, from a thorough examination, that it will prove a superior auxiliary in this department of study. In simplicity, fullness, accuracy and execution, it undoubtedly excels every other work of the kind.

REDHOOK ACADEMY.—Reading is made a daily exercise for all the students, and in addition to this, a critical exercise is had at least every other day. Particular attention is paid to writing and spelling. The students are exercised in spelling at the close of the exercise in reading.

The standard of pronunciation adopted by the principal, is Walker, and particular care is taken by him to correct errors in pronunciation, especially in the critical exercises in reading above mentioned.

The mode of instruction pursued by the principal is, to excite emulation, and to urge the students to exertion by addresses to their reason, rather than their fears.

THIRD DISTRICT.

ALBANY ACADEMY.—During the last summer a new department has been established, viz. that of English Literature, and a professor appointed to the same.

ALBANY FEMALE ACADEMY.—The pupils of the academy have been recently much interested on a subject, which has not heretofore received the attention which its importance deserves, that of correct and impressive *reading*.

This interest has been excited by a course of lectures on *elocution*, with accompanying practical exercises, by Dr. Jonathan Barber of Cambridge, Mass., who has for several years conducted this department of instruction in Harvard University. The lectures embrace a novel and elementary explanation of the science, and the exercises and readings, in which the whole academy has taken part, have not only led to much emulation and effort on the part of the pupils, but also to a very striking and general improvement in their reading.

Dr. Barber's mode of instruction is unquestionably calculated to insure a distinct and impressive utterance, and is not chargeable, as conducted by himself, with any tendency to produce unnatural or affected reading. It is adapted to improve the physical powers of the voice, and to give a distinct enunciation, which are particularly insisted on as necessary preliminaries to the higher graces of expression at which it aims. It involves also an analysis of the meaning and spirit of written language, with a view to its expression by the voice, by which an intelligent and attentive pupil may improve at the same time his powers of *criticism* and *composition*, thus exercising an important influence in the improvement of the mind as well as of the voice.

On these accounts, it is considered as highly desirable, that the system should be prosecuted in the future instruction of the academy, and with a view to promote this object, two publications by Dr. Barber, his Introduction to the Grammar of Elocution, and the Grammar of Elocution itself, have been introduced, and will in future be employed as class books in this branch of instruction. It is hoped that this high accomplishment of an English education will, by these means, be more successfully taught in the institution, and thus be more highly and justly appreciated by the public.

The increased attention to sacred music is unequivocal proof of the importance attached by parents to this branch of education; and the elementary practice upon the alphabetic elements introduced by Dr. Barber, has already produced a decided improvement in that essential point of impressive singing, a distinct enunciation of the syllables—a point so much insisted upon by that able teacher, Mr. Hastings.

JEFFERSON ACADEMY.—*Modes of study.*—In the study of English Grammar, Geography, Rhetoric, Chemistry, Natural and Mental Philosophy, and kindred studies, the principal has pursued a pretty uniform course, and, as far as he knows, somewhat pecu-

liar. The pupils in these several branches, in addition to their regular recitations, are required to read a definite number of pages each day, say five, in each author. He has supposed a diligence and a love of investigation was best secured in some instances in this way.

Originating and writing out questions on some of the above studies, (without reference to any questions in the author,) three or four on a lesson, with a *memoriter* answer is required. The pupils of the class are also admonished that a comparative estimate of scholarship will be made by a comparative estimate of the importance of the questions brought forward. Pupils are instructed at the *beginning* of the term, that at its close, they must make two faithful *accounts* of their advancement in the several branches pursued; giving in one for the inspection of the teachers, and carrying the other to their parents.

Verse system.—Each morning a verse of scripture, such as is esteemed most appropriate, is given out to the school. This verse is recited by some pupil called on, the morning after it is given out, and then by the whole school, *una voce.* On Tuesday morning, each pupil is called on to recite, *memoriter*, a single passage from the sermon of the Sabbath preceding, which contains, in his estimation, one of the most important sentiments exhibited by the preacher.

Early morning prayers.—The practice of calling the school together about sun-rise, six or eight months in the year, and attending 20 or 30 minutes to religious exercises, has been proved, in our experience, quite preferable to delaying these exercices till 9 o'clock A. M.

Our exercise in *spelling* and *defining* varies a little from last year's. The pupil now, after carefully reading the orthography and definitions on five pages of Webster's Dictionary, is required as a daily exercise, in addition, to select five words, whose definitions are most important *to him*, and commit them.

Arithmetic.—Parley's, for beginners, is, perhaps, preferable to any other published; rather superior to Emerson's First Part. Emerson's Second and Third Parts are in high estimation for advanced scholars.

We want much to see a popular system of Anatomy.

Parker on Composition, does not supersede the necessity of instructions from the *living* teacher, but is admirably well fitted to aid the scholar without aiding him too much. It will also be a great aid to many teachers.

LANSINGBURGH ACADEMY.—The course of instruction pursued is made as *practical* as possible. Many students from the country stay but one quarter; some fitting for teachers.

The principles of Arithmetic are analyzed and explained on a black board. The principles of Mensuration are demonstrated by means of figures and blocks, &c. Surveying is made practical by going into the fields with the compass and chain. The principles of Trigonometry, as applied to the measuring of heights and distances, are practically illustrated. Frequent lectures on different

branches of natural science are given before the whole school by the principal.

Schenectady Academy—*Female Department.*—The plan adopted, is one hour's recitation daily for each class in the higher branches of English science and modern languages. Prompt answers to any questions by their teachers, are the tests of the pupils' knowledge, as they are required to give the ideas of their author in their own language.

The classes in Physical Geography, History, Natural, Moral and Intellectual Philosophy, Rhetoric, Logic, Botany, &c., are taken through the book, reviewing the same several times in one term, which course renders them capable of passing a good examination at the close of the term, in every part of the work studied. Pupils are not permitted to take more studies in a term than they can thoroughly understand.

Walker and Webster are considered the standards of pronunciation. The teachers are particular to correct pupils in their respective classes, and at all times for ungrammatical language or incorrect pronunciation.

It is the intention of the principal to confine her pupils to the elementary studies, till by a thorough knowledge, they are rendered capable of advancing to the higher studies. They are exercised daily or weekly in reading, and in spelling, by writing, dictation, and correcting each other. Friday P. M. of each week is allotted to general exercises, a part of which is reading their own compositions.

Pupils are required to write compositions every week, which are criticised before the class, afterwards corrected by themselves, then submitted to a teacher for further inspection. They are likewise exercised daily in writing impromptu on given subjects, which serves the double purpose of dictation and habitual thinking.

Male Department.—Studies.—A majority of the students are pursuing studies preparatory for entering college. Hence the languages and mathematics are the prominent studies in the school. A sufficient number of young men, however, preparing for mercantile pursuits, surveying, &c., have usually been in the school, so as to render studies necessary for such pursuits an object of attention.

Reading.—Pinnock's Goldsmith's England has recently been adopted as a reading book. One half hour each day is occupied in reading a given portion of the work, upon which a few general questions are asked, that pupils may acquire the habit of remembering what they read. All members of the school take part in the exercise. It is suggested, whether a succession of abridged histories, and for advanced pupils, English classics, would not be as good and often better reading books, and at the same time treasure in the minds of pupils much useful knowledge, but which is seldom obtained. Sets of such works might be owned by academies, and loaned to students for a small sum, to replace lost or injured copies. The books of selections in common use, when once read through, become an old story. They are regarded ra-

ther as instruments, like the letters of the alphabet, to enable those who use them to read other books, than as containing any thing in themselves useful or interesting.

Writing occupies half an hour each day, and is attended to by all the pupils who are not excused by parents or guardians.

As much rapidity is insisted upon in the recitation as is consistent with the thorough understanding of the subject in hand. If the student hesitates or fails in the lesson, he can step immediately and study it again, and has permission to recite it after the class. The one who does not accept such permission cheerfully, but considers it as a punishment, is supposed to be uninterested in his study. Each lesson is reviewed the following day; the lessons of the whole week on Friday; the lessons of the term at its close.

FOURTH DISTRICT.

FRANKLIN ACADEMY, (Malone.)—As a brief outline of our course of study, we would remark, in the first place, that we aim to make all our pupils good readers, and consequently none, however advanced, are excused from this exercise. All read once a day, and are required to understand what they read. Whenever it is discovered that the reader does not understand, or is inattentive to the meaning of his lesson, he is stopped and required to define and explain. The same is done in regard to emphasis, cadence, and other inflections of voice.

We also take great pains to have our pupils well versed in orthography, and always select words for them to spell from their reading lessons, where they occur under all their different modifications. This, together with frequent exercises written upon slates, to be corrected by the teacher, we consider a much better method than that of spelling orally words, as arranged in a vocabulary, isolated, without variation, and often to the pupil without meaning.

Our young pupils are all required to pay much attention to Mental Arithmetic, and are not permitted to cipher, until they can solve not only the more simple questions, but those which are complex, and that readily. Nor is Mental Arithmetic neglected with more advanced scholars, but they are required to demonstrate all arithmetical rules by it, making use of small numbers, which can be easily remembered. We are prepared to recommend Emerson's system of Arithmetic, having tested it during the past year. While studying Mental Arithmetic, our youngest pupils study Hall's Lessons in Geography, and afterwards Olney's, and last, Woodbridge and Willard's Universal Geography.

We prefer having our scholars tolerably well versed in Geography, Arithmetic and History, before studying English Grammar, believing it to be a waste both of time and money to urge children forward with the hope of making grammarians of them at an early age. We would remark, also, that we require our scholars to read more Latin as preparatory to Virgil, than many academies in this State.

GOUVERNEUR HIGH SCHOOL.—Several of our students have entered college during the past year; but the indications of the present usefulness of this seminary are most obvious in the number of *teachers of common schools* which it furnishes to the surrounding region, and the increasing standard of their qualifications. Of the students instructed in our school during the past year, 32 males and 14 females have gone out as teachers of common schools; and it is believed that of those educated here during the last seven years, hundreds have been engaged in that employment permanently or temporarily. This institution feels to some extent unfavorably to its prosperity, the extra patronage which the Regents bestow upon the *selected* academy at Potsdam. The superior advantages which that school is supposed to possess, has already drawn away from us several of our most valuable students.

ST. LAWRENCE ACADEMY.—For an account of the department for the education of common school teachers, see schedule No. 11.

In addition to their studies, most of the scholars in the academy have, at least during one term, attended a daily exercise in English Grammar, in which the science has been fully and critically examined.

Several courses of lectures have been delivered on evenings to the whole school.

WASHINGTON ACADEMY.—Since the last report, the trustees have established a teachers' department for *educating teachers of common schools.* A copy of the plan of organization accompanies their report. With reference to this subject, the preceptor remarks: Lectures were given semi-weekly on School-Keeping, Rhetoric, and the Globes. The class in this department were examined weekly upon all the branches required to be taught in common schools, together with branches which they were pursuing, with the simplicity and minuteness suited to a class of beginners. There has been a teachers' class in the academy during the fall term for the last four years, and some of those who taught the first year for $12 per month, are now teaching in the same districts for $20, and in one instance for $22 per month. It should be observed, that interesting *topics of general information* are from time to time presented to this class. These topics have been presented to the schools over which the teachers presided; and in numerous instances, parents have confessed that they have received much important and interesting information from their own children."

All the students have been required to take the lectures on *book-keeping*, and have become practically acquainted with the subject by single entry. The greater part of scholars claimed as classical, &c. in the gentlemen's department have been exercised in *extemporaneous debate.* The students are constantly exercised in writing, and a commendable degree of proficiency is observed. Pains are also taken in both schools to correct errors in pronunciation.

Organization of the department for preparing teachers of common schools, established in the Washington Academy, at Salem, Aug. 3, 1835.

1. No student shall be admitted to the teachers' department, until he shall have passed such examination as is required by the ordinance of the Regents of the 18th March, 1828, to entitle students to be considered scholars in the higher branches of English education, nor until he shall have attained the age of 14 years.

2. This department shall be open for the reception of pupils during two terms of four months each per annum, and shall be so arranged as to afford an opportunity to each student of engaging during the winter in the business of instruction.

3. The subjects of study shall be as follows:

1st. The English Language from its elementary principles to the practical use of it in original composition. Under this head is intended to be comprised a systematic and thorough instruction in orthography, etymology, syntax and prosody; the rules of punctuation, use of capitals, abbreviations, &c.; reading, composition, extemporaneous speaking, pronunciation; rhetoric, so far as relates to the structure and philosophy of language, and the history of language so far as it can be ascertained from Webster's and Walker's preface to their larger dictionaries.

2d. Writing and Drawing.

3d. Arithmetic, mental and written.

4th. Book-keeping.

5th. Geography, General History, and History of the United States.

6th. Geometry and Trigonometry.

7th. Natural Philosophy and Elements of Astronomy.

8th. Constitution of this State and the United States.

9th. Such part of the Revised Statutes and the common law as relate to the descent and transmission of property, real and personal; the alienation thereof by deed and will; the powers, duties and rights of executors, administrators and guardians; the duties of town and county officers; and the general nature and division of crimes.

10th. Moral and Intellectual Philosophy.

11th. The Principles of Teaching.

4. Lectures shall be given by the preceptor from time to time, during the course, on the principles of teaching, and such other subjects connected with the course, as he may be pleased to select. Lectures on the legal subjects of the course shall be given as often as convenient.

5. Any student of the academy may attend the lectures.

6. The entire course shall embrace a period of two years. Such students as have pursued the entire course of studies, and as are found on public examination to be fully qualified to teach a common school of the first grade, and who are of good moral character, shall be entitled to a diploma under the common seal of the academy, and attested by the president of this board and the pre-

ceptor of the academy. Students who have not completed the course may receive from the preceptor, such certificates of their qualifications, as their character and attainments will justify.

FIFTH DISTRICT.

Bridgewater Academy.—There have been more than twenty persons who have pursued their studies during the past year at this academy, preparatory to *teaching common schools;* and in general, most of the common school teachers in this vicinity have attended the academy.

Fairfield Academy.—As to *modes of teaching*, we can mention nothing specific, without going into great minuteness of detail. The general object of instruction and remark in the recitation room is to be *practical*, in the meaning given to that word by the secretary of the University. Another object is to draw from the student his views of the subject of study in his own language, and to learn him to defend truth by the exercise of his own thought.

For remarks on teachers' department, see schedule No. 11.

Hamilton Academy.—The suggestions of the secretary of the University, on pages 8 and 9 of the instructions to academies, have been duly attended to during the past year. The trustees have ever considered it highly important that the elementary branches should be strictly attended to, and these have not at any time been overlooked. Webster and Walker are made the standard of pronunciation in the academy.

Lowville Academy.—The elements of Arithmetic are very early inculcated by means of manuscript cards, black boards and the numeral frame. To teach the younger classes to spell and read writing, words are written in large legible characters upon the black board, where the pupil is occasionally exercised during the day in reading, spelling, and defining them, until they are indelibly fixed in the mind. In the higher departments, most of the students are required to read and write every day, and spell from their reading lesson, which they are required to examine very carefully before reading. Some of the most advanced pupils however are exempt from this exercise, except on Saturday of each week, when all the students are required to read and spell, and are examined in all the studies of the week.

Pronunciation of English Language.—Walker and Webster are generally made the standard of pronunciation; but where these are considered erroneous, good use, or that pronunciation given by the best public speakers, is made the standard. The teachers are in the habit of correcting invariably all the errors of the students, not only in their exercises in composition and declamation, but also at recitations or in private and social conversation; in short, in all their intercourse with their teachers; so that every error in orthography, etymology, syntax and prosody, committed in the presence or to the knowledge of any teacher, is corrected. And

especially, with those students engaged in translating other languages into the English, unwearied pains are taken to induce them to a right choice of words and phrases; and we are qualified by the principal to state as his firm belief, that since he began rigidly to adhere to this practice, not only his classical scholars, but all the students in the academy have improved in their manner of reciting, and in their style of language, in writing and conversation, beyond his most sanguine expectations, and far beyond what could have been realized in any other way.

It is to be feared that with teachers generally in our academic institutions, the importance of this practice, growing out of the facility with which language is acquired by students so engaged, is not justly appreciated, and that in consequence, in too many instances, instead of a proper use of words, a refined and beautiful language, our ears are constantly saluted with technicalities, provincialisms and ambiguities, forming a style of language better becoming a modern Egyptian, than a graduate of an American academy.

Mode of instruction.—The great desideratum in this institution is to inculcate habits of thought; methodical, definite and intense thought. In all their recitations, the pupils are thrown as much as possible on their own resources, taught to think for themselves, and make use of their own language. An author's answer to a question, *verbatim*, is rarely heard.

School teachers.—No class has been formed for the instruction of school teachers, exclusively, during the last year, though several of the students of the last year are now engaged in schools. Such a class will be organized the present year.

Lectures will be given during the present year as often as once in a week on the different branches of Natural Science.

The trustees solicit the Regents to request the Legislature so to alter or amend the 23d section of chapter 15, of the law relative to the distribution of the Literature Fund, that the distribution of said fund may be so made that each classical student in the State, and not each Senate district, may receive an equal portion of it. The equity and equality of the present mode of distribution the trustees do not discover.

The principal remarks, that from a cursory examination of Emerson's Arithmetic, it is his impression that the 1st and 2d parts are well calculated to improve the mind and strengthen the reasoning powers of the student by induction, throwing him upon himself; and that so far as they extend they are calculated to qualify the student for active business in life; but he fears that the 3d part would lead the student to trust more to the rules laid down by the author, than upon the active energies of his own mind.

ONEIDA CONFERENCE SEMINARY.—The studies in this institution are divided into six departments, forming a systematic and regular course from the branches usually taught in common and select schools to those pursued at colleges and universities. This course, however, is so arranged that any student by remaining at

the institution one session, can have an opportunity of receiving instruction in any branch he may choose. Students may take the whole or any part of the course, and may pursue at one time as many studies as their ability and health will admit. The young ladies receive instruction from the professors of the other departments with the general classes, and they receive from the preceptress instruction in drawing, painting, and such other ornamental branches as are usually taught in female seminaries. Instruction is also furnished in music by an accomplished teacher.

In addition to the above, there is also a primary or juvenile department, divided into two branches: one for boys, the other for girls. To this department scholars are admitted who are too young to enter the regular classes. Lectures are given in each term on natural philosophy and chemistry, accompanied by practical illustrations and experiments. Arrangements are now made for a course of lessons in penmanship each term by a competent teacher.

Rensselaer Oswego Academy.—At the commencement of the last term a class was formed *for the instruction of school teachers*, and about 25 are now engaged in teaching. The effect has been an advance in the wages of teachers; and as the public now demand good teachers or none, there are many vacancies which we have not students to supply. We have been very particular to prepare, as far as we could with our limited means, teachers well qualified for their stations, according to the recommendation of the Regents of the University.

The elementary branches, as reading according to the principles of elocution, systematic penmanship, orthography, including spelling, pronunciation and habits of ready explanation, have been uniformly inculcated. Lectures have been given on the origin and structure of the English language, on Moral Philosophy and on Constitutional Law.

Union Academy.—Inaccurate pronunciation is corrected whenever heard. Compositions are carefully corrected and criticised in regard to their style generally, the structure of the sentences, the penmanship and the punctuation. All the students, except those considerably advanced in the higher branches, are required to read once a day, and words from the reading lesson are pronounced to them to spell. We frequently allow the student, to read until in our estimation he has made a mistake, by mispronouncing, miscalling, recalling, hesitating, stammering, or by reading too fast.

Between forty and fifty teachers have been instructed in this academy during the past year. A certain proportion of the teacher's time has been devoted to lecturing them in regard to the best mode of communicating instruction, of exciting the interest and attention of the pupils, and of disciplining the mind. Much care has been exercised in giving those who proposed teaching a thorough knowledge of the branches usually taught in common schools. Such students as well as others are required to illustrate,

explain and demonstrate the principles and problems embraced in every branch of study which they attend to.

UTICA ACADEMY.—*Elementary studies.*—All the students in English, both in the higher and junior departments, have exercises daily in reading and spelling, and the classical students on an average twice in each week. All of every description are taught writing on four days in each week. In all of the English departments there are lessons of review in Arithmetic and English Grammar on one day in a week, and in Geography and History on the next, alternately. Spelling by written exercises is taught once a week.

Pronunciation of English.—Particular attention is paid to the correct pronunciation of the Engligh language. In class reading, errors are allowed to be corrected by members of the class, for which, if accurate, successful individuals take precedence in numbers. Worcester's Dictionary is always the standard of decision, as well in English, as in the proper names in the scriptures, and in Ancient History, Greek and Latin Classics, Modern and Ancient Geography. Particular pains are taken to secure an accurate and uniform pronunciation of the proper names in geography and history, and technical names in the sciences. For this purpose no rule has been found of equal value with Worcester's Dictionary and pronouncing vocabularies.

Mode of instruction.—The system and mode of instruction are the same as was reported for the last year; no essential alterations having been found necessary. In some particulars the system has been somewhat extended by introducing more practical application. In surveying, the students were engaged in *land surveying in the field* during the fortnight of October vacation; and in the summer months, parties consisting of twelve or fifteen, were employed for several days, at different times, in *rail-road surveying*, under the direction of experienced engineers. One party under the direction of Mr. Williams, have taken an accurate survey of the River Mohawk, together with a trigonometrical survey of the city of Utica, and a portion of the adjacent valley. Of these surveys they have protracted and finished a handsome map. They have also been taught the use of the theodolite.

One mode of exciting diligence has been introduced during the past year. As a reward for particular excellence in studies or in deportment, by complying with specific regulations and directions, any student is entitled once a week to a letter of commendation, recommending him to his parent or friend for such reward as he shall think proper to bestow. This measure has produced very happy effects.

The whole system of discipline in the academy is intended to produce in the students, *diligence, promptness, accuracy.*

WHITESBORO' ACADEMY.—Scholars reported to be classical or pursuing the higher branches of English education, are exercised in reading and spelling, as often at least as twice or three times in

each week, and many of them are reviewing Arithmetic and English Grammar. The Constitution of the United States and State of New-York, are made subjects of study and recitation. I have long considered it as a subject of regret that the youth, particularly in our academies, are so little acquainted with these subjects. Perhaps, however, the Regents may judge that I place too high an estimate upon them. We have for the last six or seven months spent half a day each week in a recitation from Andrew C. Yates' Citizens' Guide; accompanying the recitation with such remarks as were thought appropriate.

SIXTH DISTRICT.

ITHACA ACADEMY.—The teachers constantly aim to make the students under their care as accurate and thorough in the subjects studied, as the condition of public sentiment will permit. But owing to an unhealthy state of the popular mind on the subject of education requiring more rapidity from the students in the pursuit of their studies, than can possibly be consistent with accurate learning, the end they wish to attain on this subject is hardly ever attained. There is a constant demand made on them for a hurried, and of course a superficial, education; and the consequence is, that the great object of the Regents in regard to academies, the promotion of a sound and efficient education among the youth of the State, is but very partially accomplished.

The teachers have endeavored generally to induce the higher as well as the lower classes to attend to exercises in the elementary branches of English education, such as reading, spelling, and defining the words and phrases occurring in the portion read for the lesson, and this as often as once a day usually; sometimes once or twice in the week. But it happened not unfrequently that a great degree of unwillingness to engage in these exercises was manifested by some of the higher classes, especially by those students who had arrived at years of maturity, or nearly so; and the repugnance to the study was so great, that the teachers were unable to overcome it. Still a large portion of the students did through the past year and do now attend to this part of education in accordance with the views of the Regents.

Pronunciation.—No part of instruction has been more constantly and carefully attended to than this. False pronunciation is always corrected when it occurs in reading, declamation, and in the ordinary intercourse of the school room, as well in the case of ancient and modern proper names, as in that of the common words making up the body of the English language. The standard of pronunciation used in the academy is Walker; and although the students have not generally learned theoretically the rules laid down by that author, yet these rules in their substance have been brought up to their minds, at the time any error of pronunciation was corrected.

Mode of Instruction.—There is not perhaps any thing very peculiar in the mode of instruction pursued in the academy; but no

definition nor any part of a book studied or read in English, is passed over by the teacher, until he is satisfied that the scholar reciting or reading, understands clearly the import of every word that occurs in each passage. This course the instructors have found to be attended with very happy results. It secures to the student the possession of ideas, as well as an acquaintance with words; enables him to carry away much more permanent and practical knowledge from his lessons and the subject of study, than is obtained in the more common mode of teaching; and prepares him to use language in writing and speaking, in its proper application.

The students, and especially the younger classes, who are studying the ancient and modern languages, are required to write translations once a week instead of original compositions. The instructors have found this to be more encouraging, pleasant and profitable, to the younger students, than tasking them to write original compositions before they could possibly be in possession of ideas sufficient to make a composition that would satisfy or please themselves. In this way they cultivate style from the most perfect models, and prepare themselves to put a suitable dress on their thoughts, and convey their ideas, when they shall have acquired a competent knowledge for the production of original composition.

Subjects of study.—In most cases the choice of studies to be pursued by the students is not left in the discretion of the trustees or teachers; but the youth is sent to the school and required before he leaves home, to pursue certain studies, whether he is in fact competent to pursue them with advantage or not. Such a course is doing justice neither to the teacher nor the student, and frequently prevents the latter from gaining any education at all that is useful to him in the affairs of life. When the teachers are not confined by such requisitions, they always endeavor to direct the student to such branches as are most practical.

OXFORD ACADEMY.—A department for the *instruction of common school teachers* has been more permanently established. For particulars, see schedule No. 11.

Reading, writing and spelling are the daily exercises of the younger pupils. The older scholars who are deficient in orthography, are exercised in spelling four times a week, in addition to the correction of false orthography in their compositions. All the scholars who are not good readers, are required to read in a class every day, and those most deficient twice a day. Errors in pronunciation are corrected as they occur in the ordinary business of the school, and particularly in the presence of the whole school during the exercise of public speaking. The Bible is used as a reading book once a week, by the whole school. Walker is the standard of pronunciation.

SEVENTH DISTRICT.

AUBURN ACADEMY.—The mode of instruction adopted by the principal and recommended to the assistant teachers in this academy, is designed to render the school room and its tasks as agreeable as may be consistent with the formation of good habits and the acquisition of sound knowledge. The students are divided into classes, according to their age and studies; and in general prepare their lessons in the same room with their teacher, who renders them such assistance as he may deem proper. When the classes are supposed to have studied their lessons sufficiently, they are called up to the teacher's desk to recite and take precedence according to merit. In Arithmetic for example, a class of six, eight or ten lads have from 10 to 20 or 30 questions in Colburn's Sequel assigned as a task for an hour. When called to recite, those who have correct answers take place above those who have incorrect ones. After the questions assigned are finished, similar ones are given out *viva voce* by the teacher, and the members of the class required to perform them instanter. The lad who gives the correct answer first, goes to the head of his class, and is then called upon to exhibit the method of solution on the blackboard, and to give the *rationale* in his own words.

The same method is pursued as far as practicable in the other branches. In English Grammar the students commence parsing as soon as they have learned the definitions of the article and noun; and continue to exercise their understanding as well as their memories, by progressive lessons in parsing and false syntax, as they proceed in studying the other parts of speech. A similar plan is followed in the Latin, Greek and French languages, as exhibited in Goodrich's Latin and Greek Lessons. But a better plan, it is believed, for younger students, say under ten years, and for others who have not already studied English Grammar, is to begin with interlinear translations, such as Walker's Latin Reader and Osborn's Virgil, and postpone the study of the grammar till the pupil has acquired some knowledge of the pronunciation and meaning of words. This course is more analogous to that we all take with our vernacular tongue, and better adapted to the capacities of youth at least, than the one sometimes pursued, requiring the student to commit the whole grammar to memory before he is taught the use or application of any part of it. Besides, as the acquisition of language is naturally divided into the knowledge of the pronunciation and meaning of words, and the knowledge of their grammatical construction in sentences, it would seem obvious that the student will more readily and cheerfully master these difficulties separately than conjointly.

In reading and spelling, all the students are exercised once—those under ten years, twice a day. Beginners use Bolle's Spelling Book; more advanced children have Hazen's Speller and Definer; and the larger students take Walker's Dictionary through in course. Though all are frequently practised in defining words, yet none are required to commit to memory the definitions from the book.

ONONDAGA ACADEMY.—The mode of instruction is essentially the same as before, (except that Arithmetic is sometimes taught by lectures,) i. e. it is *professedly practical;* and how far it is successfully followed may be inferred from the statements of our school commissioners. *Twelve of our students* have this winter gone out *to teach*, of whom the school commissioners affirm, "that they have never before examined a class of young men who *so thoroughly understood* the subjects on which they were examined." Our school is certainly in a more flourishing condition than it has been for several years. The reason why our classical list is smaller than usual, is, that many in this part of the country have exchanged study for *teaching*, or for the hope of *making a fortune in the west.*

ONTARIO FEMALE SEMINARY.—Pupils from abroad are required to board in the seminary, unless they can be placed with immediate friends who will watch over them with parental care. It may be proper to remark in justification of this regulation, that the frequent company a young lady would meet in a large village, is deemed incompatible with her best good as a scholar. While mingling much in society, her mind must necessarily be preoccupied, and therefore fails to receive that discipline from her studies which should be the great object of education.

PALMYRA HIGH SCHOOL.—No material change has been made in the mode or course of instruction since our last report. Every exertion is made to make all studies practical, and those branches not so are rather discouraged. The primary classes are required to read and spell daily. The authors used are our most popular periodicals, viz: Parley's and the like. These classes are exercised in spelling both by single words and by sentences. All the older and more advanced scholars are required to read and spell half-weekly; the work used is Abbott's Teacher, both for reading and spelling. All scholars in the higher branches of English education have been exercised in grammar semi-weekly.

We have introduced into the school, Duer's Outlines of Constitutional Jurisprudence; and are endeavoring, as far as is in our power, to follow the recommendation of the Regents of the University, for the instruction of teachers of common schools. It is the great exertion of the teachers to learn scholars to *think*, and to give a *practical* education, rather than a *fashionable* one. Lectures are delivered on Philosophy and Botany during the summer term, and on Chemistry during the winter.

POMPEY ACADEMY.—Since the last annual report, the trustees have established in their academy a female department, in which, for the most of the time, they have employed two female instructors. This department has been well sustained, the average number of scholars in it, being about 33.

YATES COUNTY ACADEMY AND F. SEMINARY.—The mode of instruction in this institution is that of familiar lectures. The more

advanced scholars are required to give illustrations of their own, and to apply the principles which they study to common life. For instance, in Plane Trigonometry and Surveying, young men go into the field and apply what they have learned from their books.

The subject of Astronomy, the calculation of Eclipses, &c. receives more than ordinary attention. During the mild season of the year, pleasant evenings are frequently spent in taking observations on the heavenly bodies to find latitude, longitude, &c. In this connexion it may be remarked, that the academy stands in latitude 42° 44′, and in longitude 77°, west from London, found by actual observation. Its site is 295 feet above the level of the Seneca lake, and about 25 feet above that of the Crooked lake.

While attention is paid to the higher branches, the lower are not neglected. Special attention is paid to writing, spelling, pronunciation, &c. The general principles of elocution are daily applied to reading and weekly to declamation.

Some 20 or 30 have been prepared for *common school teachers* the current year, and in the fall especially, we have many more applications for common school teachers than we can supply.

EIGHTH DISTRICT.

Clarkson Academy.—The trustees state that the events of the past year have not only baffled their efforts in the cause of education, but deprived their society of some of its brightest ornaments.

This academy was erected under the immediate charge of the Rev. Reuben Nason, a gentleman from Maine, of much experience and reputation as a teacher. The school had but commenced when he was taken from us by death. This occurrence was very soon followed by the death of his daughter, Martha Nason, who as principal of the female department, had given evidence of her superior qualifications for that station. The trustees have since continued the female department only. They have, however, engaged a principal to open the other departments; and they hope to give a more favorable account of the condition of this institution, at the close of another year.

Fredonia Academy.—The condition of the academy is and has been prosperous throughout the year. The course of instruction has not been materially changed. The trustees can speak with assurance of the happy effects of the establishment and enlargement of the library of the academy, in creating and sustaining throughout this community a deeper interest in the institution, evinced beyond their expectation, by readily filling up a new subscription of $250, to enable them to make another application to the Regents. Give our youth access to books, useful as well as entertaining books; not the trash of circulating libraries, and many will do much towards educating themselves.

Gaines Academy.—Webster's Dictionary has been adopted as a standard of orthography and pronunciation, and special care is taken in the daily recitations of the students, and at all times by

criticisms and instructions, to accustom them to the correct use of the English language.

LEWISTON ACADEMY.—The main design of the trustees of this institution is to furnish the means of acquiring a *solid* education, although ample provision is made for those who wish to pursue polite learning. Chemical lectures are given during the fall term of each year.

MONROE ACADEMY.—Near the close of the year, the condition of the academy met with its greatest and only important change, by the death of its principal. Equally beloved by students and parents, for the mildness of his government and the efficiency of his instruction, his loss could not but deeply affect the interests of this institution. It seems, however, under the auspices of his son, who assisted him in the male department the past year, gradually to be recovering from the shock it received, and to offer the prospect of becoming as flourishing as before.

The mildness and efficacy of the system of government and instruction pursued in this institution during the past year, have been such as to elicit the highest approbation of its friends and patrons. Discarding the *rod* and *ferule*, the instructors have thought that their dignity, as well as good order among the students, could best be preserved by uniting courtesy with firmness in their treatment of those under their charge.

But one punishment has been prescribed, and that was suspension for a season of the delinquent from the benefit of the institution. So effectual has this mode of government been found, that during the whole year it has not been necessary for the preservation of good order to dismiss a single scholar. The success hitherto attendant upon this management of young gentlemen and ladies, evidences to *our* minds at least, that it is much the best method to give students some degree of importance in their own eyes, to make them sensible that they are considered as having a knowledge of propriety of conduct, as well as possessing a desire for their own intellectual advancement. It is deemed that the distance between instructor and pupil, by some considered so necessary to the preservation of good order, rather defeats than attains the object for which it is proposed.

With regard to the method of instruction, it may be observed, that it is strictly analogous to that of the government. The students are encouraged to propose questions to their teachers on all points in their studies difficult to be understood. The recitations are intended, not merely for ascertaining the student's proficiency, but more especially as seasons for explanatory remark on the part of the instructors. In Geometry, for instance, instead of hearing the pupil from the plates repeat what he can recollect of a proposition, as is not unfrequently done in some of our colleges, the instructor calls upon the student to draw upon a black board the diagram, in such a manner as will render the proposition susceptible of demonstration, and then to proceed with the solution in

the simplest manner that presents itself to his mind. In case of failure on the part of the student, the instructor runs through the demonstration in the simplest manner possible.

Once a fortnight, all the students sufficiently advanced are required to present compositions for the perusal and remarks of the instructors. At stated times, these productions are read by the students before the school. One subject is proposed to the whole, thereby preventing much of the plagiarism usual when each student selects his own subject.

In the male department, the subject of elocution is attended to two hours every week, at which time all of sufficient age and advancement are required to declaim. Remarks are then made by the instructors upon the speakers individually, and upon elocution in general. It is usual, also, for the instructors themselves to give specimens of public speaking from the rostrum, for the guidance of the students.

Many young gentlemen and ladies during the past year have qualified themselves in the branches requisite in teaching common schools. About 30 have been thus qualified, a large porportion of whom, we are informed, are now engaged in instruction within the precincts of this town and those which are adjacent.

Particular attention has been paid to the elementary branches of reading and spelling, in which the pupils have been carefully exercised, as often at least as four days in each week, throughout the year. Penmanship has been attended to one hour every day, except Saturday, by all, except some few, whose chirography was deemed by their instructors as unexceptionable.

Rochester High School.—The elementary English studies are carefully taught in all the departments, excepting only orthography in the classical departments. Strict attention is also paid to the correct pronunciation of the English language, according to Walker's standard of pronunciation.

No modes of instruction are more characteristic of this institution, than the thorough drilling system pursued throughout. The aim is to make thorough scholars; and this is accomplished by multiplying examples, by ocular illustrations, and in Natural History especially, by extensive analysis and examination of specimens. The systems of Lancaster and Bell, though pursued for a time after the first establishment of the school, were laid aside and abandoned some time since, by common consent. The trustees flatter themselves that this institution will continue to merit more and more the kind patronage of the Regents and of the public, and to equal in usefulness and reputation any similar institution in the State.

Springville Academy.—Particular attention is paid to reading, writing and pronunciation, by all the classes, the highest as well as the lowest. During the summer term, the trustees offered gratuitous tuition to one student from each of the towns in their county, provided they were of good character and had the requisite

qualifications to teach a common school, and would pledge themselves to teach such school this present winter in the county, if an opportunity offered; but only five applications were made and accepted. It is the intention of the trustees to make the same offer the next summer term, with a view to encourage a more thorough education among common school teachers.

True extracts.

GIDEON HAWLEY,
Secretary of the University.

SCHEDULE No. 7.

Containing Abstracts from the Academic reports for 1835, made to the Regents of the University, exhibiting a statement of the various prices charged for tuition in the several Academies from which such reports were received, on the different subjects of study pursued in such Academies, and also a statement of the average price of board in each Academy, or in its vicinity.

Names of Academies.	Av. price of board.	*Subjects of study.*	*Prices charged.*
		First District.	
Clinton,	$1 75	Languages and higher branches of English, per qr.	$5 00
		All other branches, "	3 00
Erasmus-Hall,	2 50	Elementary branches, per quarter, from "	$2 50 to 3 00
		do with arithmetic, Eng. grammar & geography, "	3 50
		Algebra and geometry, "	4 00
		History, trigonometry, &c., "	5 00
		Classical studies, "	4 50 to 10 00
		Music; piano forte, "	15 00
		French, "	5 00
Oysterbay,	1 75	Reading and writing, "	1 50
	2 00	English grammar and arithmetic, "	2 00
		Geography, "	3 00
		Classical studies, "	5 00
Union Hall,	2 00	Reading and writing, per term 23 weeks,	6 00
	2 50	English grammar, with above, " "	7 00
		Arithmetic, " " "	8 00
		Geography, " " "	10 00

Names of Academies.	Av. price of board.	*Subjects of study.*	*Prices charged.*
		Mathematics, book-keeping & classics, with above, pr term 23 we.	$14 00
		French and other modern languages, each $16,... " "	
		do with classics, each $8,..... " "	
		Second District.	
Delaware, ...	$1 50	Every branch,..... per week,	0 25
	1 75	Extra, music and use of instrument,..... per qr.	13 00
Dutchess County,.....	1 75	Classical department, ... "	8 00
	2 25	English " ..... "	4 00
Kingston, ...	1 75	Elementary English branches,..... "	8 00
		Higher " " and languages..... "	10 00
Farmers' Hall,.....	.....	Latin and Greek, ... per term 4 mos.	5 00
		Higher branches English,..... " "	3 00
		Reading, writing, arithmetic and geography, ... " "	2 00
Montgomery, ...	1 25	Introductory department, ... per qr.	$2 00 to 2 50
	1 75	Junior, ... "	3 50 to 4 00
		Senior, ... "	5 00
Mount-Pleasant, ...	.....	Not stated.	
Newburgh, ...	2 00	English branches, ... "	3 50
	2 50	Classics and mathematics, ... "	5 00
North-Salem, ...	1 ..	Tuition, ... "	2 00 to 5 00
Redhook,.....	2 00	Male department,..... "	2 00 to 5 00
		Female " ..... "	2 00 to 4 00
		Third District.	

Albany,	3 00	Classical department,	"		8 00
		English education, general science, mathematics,	"		6 00
		Elementary department,	"	4 00 to	5 00
		French, extra,	"		3 00
Albany Female Academy,		Sixth or lowest department,	"		3 00
		Fifth, $4; fourth, $5; third, $6; second, $7, and first dep't	"		8 00
		French, $5 per qr. extra,	"		
Albany Female Seminary,		First or lowest department,	"		3 00
		Second, $4; third, $5; fourth, $6; fifth, $7, and sixth,	"		8 00
Hudson,		Not stated.			
Jefferson,		Not stated.			
Kinderhook,	1 50	Language and mathematics,	"		5 00
	1 75	Higher English branches,	"		4 00
		Common "	"		3 00
		French,	"		5 00
		Music,	"		8 00
Lansingburgh,	2 00	Reading and orthography,	"		2 00
		Writing, geography and grammar, with above,	"		3 00
		Higher English branches, "	"		4 00
		" " and classics, "	"		5 00
Schenectady,		Female department, elementary branches,	"		3 50
		Higher " " each,	"		1 00
		Chemistry and botany, each,	"	3 00 &	5 00
		Drawing and painting in water colors,	"		7 00
		Oil painting, $8; music, $10.			
		Male department, English branches,	"		5 00
		Classical studies,	"		6 00

Names of Academies.	Av. price of board.	*Subjects of study.*	*Prices charged.*
		Fourth District.	
Cambridge Washington, ...	.....	Classical and higher English branches,..... per ann.	$20 00
		Minor branches, ... "	12 00
Canajoharie, ...	1 25	Reading, writing and arithmetic,..... per term 14½ weeks,	2 00
	1 50	Grammar, geography or history added, ... " "	3 00
		All studies of a higher grade,..... " "	5 00
Franklin, ...	1 50	Common branches, students under 9 years,..... per year,	6 00
		" " from 9 to 12 years, ... "	9 00
		" " over 12 years,..... "	12 00
		Languages and higher branches,..... "	13 50
Gouverneur, ...	.....	Primary branches, with grammar, geography, and arithmetic, for young scholars,..... per qr.	3 00
		Same for older students,..... "	4 00
		Classics and higher branches English, ... "	5 00
		(Terms of 4 months appear to be intended by above quarters.)	
Granville, ...	1 50	Classics and higher English branches,..... per qr.	4 00
		Lower studies,..... "	3 00
Johnstown, ...	1 50	Classics and higher English branches,..... per term 4 mos.	6 00
		Arithmetic, grammar, geography, &c.,..... " "	4 00
		" " with any one of higher English branches,..... " "	5 00
		Primary branches,..... " "	3 00
St. Lawrence, ...	1 00	Common English branches and classics,..... " "	4 00

	1 25	Higher English studies,	"	"	5 00
		French, extra, $1.50,	"	"	
Washington,	1 25	Classics and higher branches English,	per year,		20 00
		Other studies,	"		12 00
		Music, extra,	"		40 00
		Fifth District.			
Bridgewater,	1 00	Greek and Latin,	per qr.		4 00
	1 50	Chemistry, English higher branches and mathematics,	"		4 00
		History, geography, rhetoric and moral philosophy,	"		3 00
		Lower English branches,	"		2 50
		French, drawing and painting, $5,	"		
		Music and use of piano, $10.	"		
Clinton Grammar School,	1 25	Arithmetic, grammar and geography,	"		3 00
	1 50	Higher English branches,	"		4 00
		Latin and Greek,	"		5 00
Fairfield,	1 25	Grammar, arithmetic, geography, &c.,	per ann.		9 00
		All other studies,	"		15 00
Hamilton,	1 25	Latin, Greek and French,	"		16 00
		Higher English branches,	"		12 00
		Common "	"		6 00
Lowville,	1 50	Common branches English,	per qr.		3 00 to 4 00
		Higher " and classics,	"		5 00
		Primary department,	"		1 25 to 1 50
		Extra, music, $5; French, $4,	"		
Oneida Conference Sem'ry,	1 63	Common English branches,	"		3 00
		All other studies,	"		5 00
		Primary department,	"		1 00 to 2 00
		Lectures on natural philosophy and chemistry, per course, $1.50,			

Names of Academies.	Av. price of board.	*Subjects of study.*	*Prices charged.*
Oneida Institute,	1 00 1 50	All studies, ... per ann.	$22 00
Rensselaer Oswego,	1 25	All students under 10 years, ... per term 4 mos.	3 75
		All other students, ... " "	5 00
Union,	1 25	Common English branches, ... per year,	16 00
		Higher " and classics, ... "	20 00
Utica,	.....	Classics and higher English branches, ... per qr.	6 00
		Other English studies, ... "	4 00 & 5 00
Whitesboro',	1 25	Male department, all studies, ... "	6 00
	1 75	Female " common English branches, ... "	3 50
		" " higher " ... "	6 50
		Extra, Greek or Hebrew, $4; French, $5, ... " Drawing, $6.	
		Sixth District.	
Cherry-Valley,	.....	Not stated.	
Cortland,	1 75	Classics, French, Eng. higher branches & mathematics, p. term 15w.	5 00
		Lower English branches, ... "	3 75
		Extra, music, $10; use of piano, $2, ... "	
Franklin,	1 50 2 00	All studies, ... "	5 00
Hartwick,	.....	Not stated.	
Ithaca,	1 50	Classics and higher English branches, ... per year,	20 00
		Elementary " " ... "	16 00
Oxford,	1 50	Common branches English, ... per term 15w.	3 66
		Higher " " ... "	4 33

Owego,	1 50	Mathematics and languages,	"		5 50
		Juvenile department,	per qr.		2 00
		Common English branches,	"		3 00
		Other studies,	"	4 00 to	5 00
		Seventh District.			
Auburn,	1 00	Reading and spelling,	per term 4 mo.		2 66
	1 50	Minor classics and elementary English branches, students under 12 years,	"		4 00
		Classics and higher English branches,	"		5 00
Canandaigua,		Primary department,	per qr.		2 50
		Higher "	"		4 00
		Extra, French or Spanish, $2.50,	"		
Onondaga,	1 00	Primary department,	"	1 50 to	2 00
	1 50	Ordinary English studies,	"		3 00
		Classics and higher English studies,	"		4 00
		Natural sciences, extra,	"		2 00
Ontario Female Seminary,	2 00	Whole English course,	per year,		30 00
		French, Spanish and Latin, each,	"		15 00
		Drawing, $16; music, $20; use of piano, $8,	"		
Ovid,	1 75	Primary department,	"		16 00
	2 00	Elementary English branches,	"		12 00
		" " with geography & globes,	"		14 00
		Rhetoric and higher English branches,	"		16 00
		Languages and mathematics,	"		18 00
Palmyra,	1 25	Primary branches,	per qr.		3 00
	2 00	English higher branches, with Latin and Greek,	"		5 00
		Either of the above, with French or Spanish,	"		8 00
		French or Spanish, $5; drawing or painting, $5,	"		

Names of Academies.	Av. price of board.	*Subjects of study.*	*Prices charged.*
		Music, $12.50, ... per qr.	
Pompey, ...	1 50	Classical and higher English branches, (sup. to be for term 22 wee.	$4 00
		Other branches, ... " "	3 00
		Music on piano, ... " "	8 00
Yates County, ...	1 25	English department, ... per qr.	$3 00 to 5 00
	1 75	Latin and Greek, ... "	5 00
		French, with English studies, ... "	5 00 to 7 00
		Music, $6; use of piano, $2; extra.	
		Eighth District.	
Clarkson, ...	1 50	Elementary studies, ... per term 4 mo.	2 50
		All others, ... " "	4 00
		Drawing and painting, extra, $2, ... " "	
Fredonia, ...	.....	Common English branches, ... per qr.	3 00
		Higher " ..... "	4 00
		Languages, mathematics and book-keeping, ... "	5 00
Gaines, ...	1 50	Primary department, ... per term 4 mo.	2 00
	2 00	English " ..... " "	4 00
		Ladies classical department, ... " "	5 00
		Gentlemen's " ..... " "	6 00
Lewiston, ...	.....	Common English branches, ... per qr.	4 00
		Higher " and languages, ... "	5 00
		Extra, music, $10; drawing, $3, ... "	
Middlebury, ...	1 50	Classical department, ... "	4 00

		English department,	"		3 00
Monroe,	1 50	English studies,	per term 16 w.		5 00
	2 00	Latin, Greek, French and Italian,	" "		7 00
		Music, $10,	" "		
Rochester,	1 75	Juniors in female department,	per qr.		3 00
		Primary English studies,	"		4 00
		Higher " and classics,	"		5 00
		Extra, French, $2; instrumental music, $10; use of piano, $1,	"		
Springville,	1 25	Classics and French language,	per year,		16 00
		English, except higher mathematics,	"		12 00
		" with " "	"	14 00 to	16 00

True abstracts.

GIDEON HAWLEY,
Secretary of the University.

SCHEDULE No. 8;

Containing a statement of the proceedings of the Regents of the University, in relation to the appropriation of money, for the purchase of books and apparatus, for the use of academies; with a list of academies applying for and receiving such appropriation.

CIRCULAR

From the Regents of the University.

At a meeting of the Regents of the University, held on the 1st day of May, 1835, the following ordinance was adopted.

The Regents of the University having been empowered by an act of the Legislature, "*relating to the distribution and application of the revenues of the Literature Fund,*" passed April 22, 1834, to assign, in their discretion, to the several academies and schools subject to their visitation, certain parts of said revenue, not exceeding $250 a year to any one of said academies and schools, to be applied to the purchase of text books, maps and globes, or philosophical or chemical apparatus, for the use of such academies and schools, subject to such rules and regulations as the said Regents shall prescribe.

And it being provided by the said act, that no part of the moneys so to be assigned to any academy or school, shall be actually paid over to them, unless their trustees shall "*raise and apply an equal sum of money to the same object,*" (which said provision, according to the decision of the Regents heretofore made thereon, requires said sum to be raised from sources other than the corporate funds already possessed by said academies and schools:)

And the Trustees of sundry academies, in complyance with a resolution of the Regents of the 25th of April, 1834, having signified their intention to raise and apply certain sums of money for the purposes contemplated by said act, in case they receive from the Regents an equal sum of money to be applied for the same purposes; but no evidence having as yet been presented to the Regents, that the said sums of money so intended to be raised and applied by the said trustees, have been actually raised, or secured to be raised in the manner required by the said act; and the trustees of some of said academies in declaring their intention to raise said sums of money, having acted on the presumption that the same might be raised by an appropriation out of their existing corporate funds, which is contrary to the true intent and meaning of the said act as understood and adjudicated by the Regents:

And it appearing to the Regents to be intended by the said act, that the books and apparatus to be purchased as therein contemplated, should be approved of by them:

Be it therefore ordained by the Regents of the University,

First, That no part of the revenue of the Literature Fund, to be assigned to any academy or school for any of the purposes contemplated by the said act, shall be paid over to such academy or

school, until the trustees thereof shall certify and declare under their corporate seal, that the money required by said act to be raised and applied by them for the same purposes, has been raised by contribution, donation, or from other sources independent of their own corporate property: That the same has been actually paid to their treasurer, or satisfactorily secured to be paid to him on demand therefor, to be applied for the purposes above mentioned, designating said purposes by specifying the particular books, maps and articles of apparatus proposed to be purchased by them.

Second, Whenever (but not oftener than once a year, and during the annual session of the Regents,) the trustees of any such academy or school shall present to the Regents the certificate required by the preceding section of this ordinance, the Regents will, in case such certificate, or the matters therein contained be satisfactory to them, appropriate out of the revenue of the Literature Fund set apart for that purpose, (being the excess of said revenue over $12,000) so far as the same shall be sufficient for that purpose, after first satisfying and paying thereout the appropriation already made by them for the support of the departments for educating teachers of common schools established in certain academies, a sum of money equal to what shall appear from such certificate to be raised for the purposes therein specified, (but not exceeding the amount allowed by said act,) to be applied to the purchase of such books, maps and articles of apparatus as shall be specified in such certificate, or to the purchase of such other books, maps and articles of apparatus, as the Regents shall designate and direct to be purchased in lieu thereof, or of part thereof; notice of the articles so to be designated and substituted, being given to the said trustees.

Third, Whenever any appropriation shall be made by the Regents pursuant to the provisions contained in the last preceding section of this ordinance, it shall be the duty of the chancellor and secretary of the university to certify the same to the Comptroller of the State, that the same may be paid by him according to the statute in such case made and provided.

Fourth, The secretary shall cause this ordinance to be printed, and copies thereof to be sent to all the academies and schools in the State, subject to the visitation of the Regents.

A true copy.

GIDEON HAWLEY,

Secretary of the University.

The following is a list of the names of the several academies which have made application to the Regents of the University, for money to be applied to the purchase of books and apparatus, with the appropriation made therefor, by the Regents.

Names of Academies making application.	Date of application.	Amount of money applied for.	Amount appropriated on such application, being equal to amount raised.
Erasmus Hall Academy,	Jan'y, 1835,	$250	
Oyster Bay, "	"	100	
Montgomery, "	"	50	
Mount-Pleasant, "	"	250	
Albany Female, "	"	250	$250
Gouverneur High School,	"		
St. Lawrence Academy,	"	250	150
Bridgewater, "	"	40	
Hamilton, "	"	Enough to purchase surveyor's compass, &c.	
Lowville, "	"	$112	112
Seminary of Oneida and Genesee Conference,		Trustees say they will appropriate as much as they receive, &c.	
Cortland Academy,	"	$250	
Ithaca, "	"	250	
Ovid, "	"	250	90
Palmyra, "	"	250	
Albany Female Seminary,	June, 1835,	250	250
Clarkson Academy,	"	250	250
Fredonia Academy,	"	250	250
Jefferson, "	"	250	250
Renselaer Oswego,	"	250	250
Utica, "	"	250	250
Springville, "	Jan. 1836,	250	
Albany Academy,	"	250	
Oneida Con. Sem'y.,	"	100	
Gaines Academy.	"	250	

A true statement.

GIDEON HAWLEY,
Secretary of the University.

SCHEDULE No. 9.

Exhibiting the result of observations made at one of the Colleges, and at several Academies in the State, on the variation of the Magnetic Needle.

Name of College and Academies.	Latitude N.	Longitude W.	Magnetic variations.	When observed.
Geneva College,	42° 52′	75° 05′	3° 49′ 00″ W	October 1, 1833.
Academies.				
Albany,	42 39	73 44	6 40 00 W	October, 1834.
Auburn,	42 55	76 28	3 43 00 W	October 25, 1833.
Clinton,	41 00	72 19	6 08 00 W	November 5, 1834.
Erasmus Hall,	40 37	73 58	4 25 00 W	October, 1834.
			4 45 00 W	" 1835.
Johnstown,	43 00	74 23	6 02 00 W	November 24, 1818.
Oneida Conference Seminary,	42 55	75 51	3 25 00 W	October 31, 1834.
Oxford,	42 28	75 33	3 51 45 W	October 9, 1834.
St. Lawrence,	44 40	75 01	7 25 00 W	October 14, 1835.
Union-Hall,	40 41	73 56	4 00 00 W	October 21, 1835.
Utica,	43 06	75 13	4 10 00 W	October, 1834.

GIDEON HAWLEY,
Secretary of the University.

SCHEDULE No. 10.

Minutes of the proceedings of the meeting held by the principals of the academies selected by the Regents of the University of New-York, in which to organize departments for the education of teachers of common schools, convened at the capitol in Albany, September 1st and 2d, 1835.

The following gentlemen were present, viz:

William H. Campbell,	Erasmus Hall,	1st	District.
Jacob C. Tooker,	Montgomery Academy,	2d	do
Silas Metcalf,	Kinderhook, do	3d	do
Asa Brainard,	St. Lawrence, do	4th	do
David Chassell,	Fairfield, do	5th	do
Merritt G. McKoon,	Oxford, do	6th	do
Henry Howe,	Canandaigua, do	7th	do
	Middlebury, do	8th	do

The meeting was organized by appointing Mr. Chassell chairman, and Mr. Howe secretary. The circular of the committee of the Regents of the University calling this meeting, was read by the chairman.

It was resolved to proceed to the discussion of the subjects of study embraced in the report of the Regents of the University, organizing the departments for the education of school teachers.

Each member of the convention named the Text Books adopted in the teachers department in the institution under his charge, and explained the mode of instruction in each branch. After comparing the Text Books used, a great degree of uniformity was found to exist: and moreover, in the opinion of the convention, it was deemed inexpedient to decide upon any particular authors as Text Books to be permanently used in the institutions here represented.

The following catalogue embraces the books recommended by this meeting, to be purchased by the Regents of the University, as books of reference for the teachers' department.

CATALOGUE.

Subjects of Study.	*Text Books used.*	*Books of reference in the Library.*
English language,..	Murray's, Kirkham's & Goold Brown's Gram	Webster's Philosophical Grammar, Horne Tooke's Diversions of Purley, Harris' Hermes.
Arithmetic, ...	Adams's, (new) Smith's, Emerson's Series, Colburn's do	Bennett's Mercantile Arithmetic, Hassler's, Dewey's, Pike's.
Geography, ...	Woodbridge's Elements	Woodbridge's and Willard's Ancient and Modern, Malte Brun, and Babi.
Drawing, ...	Fowle's, ...	Peale's Graphics.
Book keeping,....	Preston's and Bennett's,	
History, U. S. and State of N. Y.	Irving's Columbus, (abridged,) Goodrich's U. S. Webster's do	Irving's Life of Columbus, 8 vo. Marshall's Washington, Morse's America, Bev. Botta's America, Sparks' American History.
General History,..	Whelpley's, Tytler's & Worcester's,	
Rhetoric, ...	Jamieson's, Whateley's, Blair's & Newman's,	Blair's, 8 vo. Kame's Elements, Campbell's Philosophy of Rhetoric, Burke on the Sublime, Allison on Taste, Newman's Rhetoric.
Mathematics,		
Algebra, ...	Day's, Colburn's, and Bonnycastle's, ...	Yale College Mathematics, Hutton's do. Bourdon's Algebra, by Davies, Cambridge Mathematics.
Surveying, ...	Gummere's and Flint's,	Gibson, Gummere.
Philosophy, Nat..	Comstock's, Jones' and Olmstead's, abridged,	Arnott's Physics, Olmstead's Philosophy, 2 vols. 8 vo. Cambridge Course of Philosophy.
Chemistry, ...	Comstock's, Turner's, Jones' and Conversations on Chemistry,..	Webster's Manual, Silliman's Chemistry, 2d edition, Parke's Chemical Catechism, Bigelow's Technology, Beck's Chemistry.

Subjects of Study.	*Text Books used.*	*Books of reference in the Library.*
Astronomy,.....	Wilkins', Burnett's Geography of Heavens,	Ferguson's Astronomy, Burnett's Geography of the Heavens, and Wallace on Globes.
Mineralogy, ...	.....	Cleaveland's Mineralogy.
Philosophy, Moral,	Wayland's Moral Science, Abercrombie's,	Parkhurst's, Paley's, Wayland's, (large work,)
Philosophy, Intel..	Abbot's, Abercrombie's	Locke, Reid on the Mind, Stewart, Brown, Upham,
Principles of teaching,,	Abbott's Teacher, and Hall's Lectures,....	Letters to a Student in the first stages of education, Elementary Principles of Education, by Spurzheim.

Books of references for Library.

Lectures on School Keeping, by Emerson Davis.
Lectures before American Institute, (whole series.)
The Student's Manual, by Rev. J. Todd.
Historical description of the first Public School in Hartford, Ct.
Babington on Education.
Education of Children while under the care of parents, by John Hall.
Grimke's Reflections on the objects of Science, &c.
Young Man's Guide.
Wood's Account of Edinburgh Sessional School.
Cousin's Report on Schools in Prussia.
Taylor's District School.
School-master's Friend and Committee-man's Guide.
Annals of Education and Journal of Education.
Abbott's Teacher.
Teacher's Guide; Strickland on Popular Education.
Edgeworth on Practical Education.

Miscellaneous Works for Teacher's Libraries.

Silliman's Journal of Science, (whole series.)
Constitution of the States.
Treasury of Knowledge.
Library of Useful Knowledge.
Johnson's large English Dictionary.
Webster's, do
Crabbe's Synonymes.
Lampriere's Historical and Biographical Dictionary.

The following resolutions were unanimously adopted:

Resolved, That in the opinion of this meeting, the studies taught in the Teachers' Department should be pursued to the following extent, in order to entitle the members thereof to a diploma, viz: Through the text books on the studies prescribed, now used in this department in our schools, or others equivalent to the same; in Geometry, only through the first six books of Playfair, or what shall be deemed equivalent in other authors.

Resolved, That it be respectfully recommended to the Regents of the University, to add to the present list of studies prescribed in the Teachers' Department, the study of Algebra, through simple and quadratic equations, and ratio and proportion.

Resolved, That in order to render the evidence of qualification uniform, and more acceptable to the young men who shall have completed the prescribed course of study, diplomas from an engraved plate are deemed important.

Resolved, That a work containing the Constitution of New-York and that of the United States, together with those parts of the Revised Statutes to be studied by the class of teachers, accompanied with explanatory notes, is very desirable.

Resolved, That as principals of the academies selected for the education of school teachers, we regard our situation as one in-

volving very great responsibility; and we pledge ourselves to the Regents of the University, that no efforts on our part shall be wanting to secure, in its practical results, the advantages of the system prescribed in their report.

DAVID CHASSELL, *Chairman.*

HENRY HOWE, *Secretary.*

A true copy.

GIDEON HAWLEY,
Secretary of the University.

SCHEDULE No. 11.

Containing abstracts from the special reports for 1835, made by the several Academies in which departments for the education of common school teachers have been established, exhibiting a full account of the progress and condition of said departments.

ERASMUS HALL ACADEMY,

Established at Flatbush, in the First Senate District.

The trustees represent that they received from the Regents, $400 for the support of the department, and $184 for the purchase of apparatus, &c. They agreed to pay the principal of the academy $400, and he obligated himself to teach all students, not exceeding 15, for that sum, to find the necessary assistants and pay the contingent expenses. They also agreed to pay him $5 per quarter for every additional student; $100 have been paid to the principal, and $65.25 expended for apparatus. "As an inducement for students to avail themselves of the advantages to be derived from the department, the price of tuition was fixed at the low sum of $1.25 per quarter, and public notice was given in two of the most extensively circulated papers published in the city of New-York; and in one published in Brooklyn, which has a very extensive circulation throughout the whole island, of the establishment of the department and the advantages to arise therefrom.

"And the principal of the academy, and individual members of the board, endeavored to prevail upon parents who had children in the institution, as well as others, to avail themselves of the advantages of the department. Yet they regret to say that only two applications have been made, one of which was in behalf of a boy aged about 12 years, but who upon examination by the principal and a committee of this board, was found not to possess the the necessary qualifications; and the other by William James Stephens, a boy of suitable age and possessed of the necessary qualifications. The latter was admitted to the department upon receiving from him and his guardian, the pledge recommended in the instructions accompanying the ordinances of your honorable body. His guardian, however, expressed a wish that he should pursue

classical studies, which at the time he was admitted was not thought to be inconsistent with the design of the department, in which they now learn they were mistaken. They do not therefore feel themselves at liberty to report him as belonging to the department.

"Of the sum agreed to be paid to the principal, only one hundred dollars have been paid him; but which, after deducting the expenses he has incurred in relation to the department, he has honorably offered to refund, and relinquishes moreover his right to the residue thereof.

"The residue of the money appropriated for the purchase of the apparatus, remained unexpended, which, together with the balance of $400 appropriated for the support of the department during the past year, which remains, after deducting the amount of expenses incurred in relation to it, awaits the further order of the Regents.

"The board of trustees were apprehensive at the time of the organization of the department, that few would be found to embrace the advantages offered by it, unless the price of tuition should be made very low. They therefore fixed it at the price of $1.25 per quarter, as above stated, and the students were to have the full use of the library.

"The high price of board in Flatbush and its vicinity, arising principally from its contiguity to New-York, virtually disqualifies all but those in the immediate vicinity, and who have in view higher prospects for their children than teaching common schools, from partaking of the benefits of the academy.

"To remedy this difficulty, an attempt was made to raise a manual labor school to be connected with the academy, which would enable students to board themselves by the avails of their own labor, but in this they were unsuccessful.

"The board, after being honored by the Regents with the selection of this institution for the establishment of a common school department in this district, felt it their duty to accept the appointment and use their endeavors in accomplishing the laudable objects contemplated by them. Yet after a full consideration of the case, and particularly of the obstacles that have so far embarrassed their efforts, they are satisfied that they cannot carry into effect the designs of the Regents in the establishment of the department. They have accordingly resolved to resign, and do hereby respectfully resign the trusts reposed in them in that behalf. And at the same time they express their obligation for the favorable notice by your honorable body, in the selection made by them, and will cheerfully aid them in every effectual way that may be devised, in the accomplishment of the high object sought to be attained by them."

Montgomery Academy

Established at Montgomery, in the Second Senate District.

The trustees report, that on the 10th April last, they received $309, and expended the same for books and apparatus.

The principal of the acadamy was employed to teach the department, but at no particular compensation. The principal in order to be ready to instruct the department, employed an assistant teacher in the academy. The trustees deem they ought to pay such teacher $400.

The expense of establishing the department was $445.81.

No students have been taught in the department.

KINDERHOOK ACADEMY,

Established at Kinderhook, in the Third Senate District.

The trustees report that on the 10th April, 1835, they received for the department $686, of which $199.81 have been expended for apparatus, and $400 appropriated to pay the teachers for one year, of which $300 were paid, leaving a balance of $186.19 on hand.

"The charge of this department has been assigned to Silas Metcalf, who has employed James Johnson, jr., and the compensation allowed is $400. We have advertised somewhat extensively the plan and objects of the Regents in the establishment of the department, and have endeavored to place it fairly before the public mind. We have entered into contracts for the erection of a new academic building, to be completed by the first day of July, 1836, that we may possess greater advantages for carrying this plan into effect."

The trustees state that not a single individual has entered this department with a view of taking a three years' course, and who has strictly pursued the course of discipline and study prescribed in the plan of the Regents. The thorough discipline and length of that course seem to deter many from entering the department. Still we would state, that the number of those who join us with a view of preparing to teach, is increasing. About fifteen individuals who were with us some portion of the year, ending with the close of our summer term, (Oct. 20,) were employed as teachers after leaving our institution.

"A number of these gave no intimation to us of such intention, and pursued our ordinary English and classical course. Others were desirous of confining their attention almost exclusively to the subjects they expect to teach. A few attended partially to the principles of instruction by recitations from Hall's Lectures, Taylor's District School, and similar books, accompanied by remarks from the teachers."

ST. LAWRENCE ACADEMY,

Established at Potsdam, in the 4th Senate District.

The trustees report, that on the 7th May, 1835, they received for the department, $577, $400 of which has been paid for teachers' salaries, and $142.06 for apparatus, leaving a balance of $34.94 in their hands.

D. S. Sheldon, A. M. was employed as Professor of Mathema-

tics and Natural Philosophy in the department. Salary at present, $500.

The trustees state, that, "although this department has been but lately organized by the Regents, yet as it has in effect been a long time in existence in this academy, and much expense incurred on account of it, and is now combined with the other departments, it is impossible to estimate with any degree of accuracy what additional expense has been incurred on account of it, over and above what would have been incurred if no such department had been established by the Regents. We can only say that one teacher with a salary of $500 has been added to the number of teachers of the preceding year; and that the labors of all the teachers have been more or less devoted to the scholars in this department, particularly those of the principal; and it is the intention of the trustees, when their new academy edifice shall be completed, to elect a professor of the languages, that the principal may be enabled to devote his labors mostly to this department.

"Immediately on the establishment of this department, the trustees took the subject of tuition into consideration, and passed two resolutions, one fixing the price of tuition in this department at $12 for the teachers' year, or $36 for the whole course; and another, that no scholar should be debarred the privileges of this department, on account of the inability to meet his tuition bills. The trustees are decidedly of the opinion that the influence and success of this department depend much more on the advantages offered than on any reduction in the price of tuition. And they are likewise fully convinced from past experience, that an amount of both talents and labor is imperiously demanded in this department, not inferior to what is bestowed in colleges on the same number of scholars. When then, they offer the whole course of three years at a sum not exceeding the price of one year's tuition in colleges, and to wait on all those who are unable promptly to pay their bills, till they shall have earned the money by teaching, they think they have done all in their power to favor the scholars, and retain at the same time the means of sustaining and giving efficiency to the department.

"The trustees here base their calculations on the results of actual experience. In order to give character and utility to their efforts to prepare teachers, they employed three graduates, (the number now employed,) for three years, but finding they were involving themselves in debt at least $200 per year, were obliged to dismiss the third. They have filled his place at an increase of salary. Consequently they must calculate here a draft of at least $200 per annum on the $400 appropriated by the Regents over and above the income from tuition charged at its former price. They have now made a deduction from their former price of tuition of $2 per annum in favor of all those in this department, and as the the new building is intended to accommodate at least 100, they think there can be doubt that this department will average that number. Allowing the $200 for former deficiency, and $200 reduction on these scholars, and the sum appropriated by the Re-

gents is exhausted, without taking into account the embarrassment occasioned to the funds by trusting out so large a portion of tuition, and the loss which must inevitably be sustained in the bills. Any increase of scholars must be met by a proportional increase of teachers, or the utility and character of the department cannot be sustained.

"The trustees are now able and actually do supply gratuitously the greatest part of the text books used in this department, so that the greater part of the amount charged for tuition is actually saved in the expense of books, and in many instances where scholars are able neither to pay tuition nor buy books, by trusting them for the former, and giving them the use of the latter, they are enabled to enjoy the advantages of this department.

"By far the greater number of the scholars had been members of the school previous to the establishment of this department by the Regents, and had been both instructed and publicly examined by the instructors. The others were duly examined on their admission into the department. No other evidence of intention to engage in the business of teaching than their own affirmation, or that of their parents, has been required. The amount of tuition charged in this department for the present year, is $310.

"The whole number of students belonging to the department on the 25th day of November, was..... 59
No. connected with the department for a period not exceeding one quarter or term,..... 33
For a period exceeding one but not exceeding 2 terms, ... 33

"Students in this department generally lodge in their rooms, and many board themselves at an expense of 40 to 50 cents per week. Those who board out, pay $1. to 1.25 per week. Tuition for teachers' year, $12.

"Inducements held out by the institution for students to enter, are: reduced price of tuition; credit for tuition until they can earn money by teaching; use of text books, which saves them about the amount of tuition, and which some of them have not the means of buying; and *above all*, in the estimation of the trustees, *the great amount of first* rate instruction.

"As this department was not established by the Regents till the middle of our first term, it was not organized till the commencement of the second term. Consequently a considerable number of ladies who attended the first term to prepare for teaching during the summer, are not included in the list, as well as several gentlemen. These, added to the classical scholars who have devoted considerable attention to the principles of teaching, and who are now employed in our district schools, make upwards of a hundred who have left our school the past year to engage in teaching. All the scholars have engaged in an exercise on English Grammar daily of an hour's length. We have delivered a course of lectures on the principles of teaching. One evening per week has been devoted to a public discussion of questions connected with both the theory and practice of teaching. These discussions have been ably sustained by the scholars; and an invaluable amount of *practical*

information imparted by those who have spent considerable time in teaching. One fact mentioned in these exercises, may serve to show the influence of the efforts made in this department; and that much may actually be accomplished, though the scholars may remain only a short time in the department. One of the scholars, who has been for several years a very popular and successful teacher, remarked in illustration of the importance of leading the scholars to think, reason and decide for themselves, which had been the subject of a lecture by the principal in the former part of the evening: 'that seven years ago he attended this school one quarter, (it being the first term special efforts were made in behalf of teachers,) and that previous to this, he had been teaching about two years, pursuing the same old track; but by the assistance and impulse then given him, he was *unhitched* and enabled to start ahead.' And he added that he had since taught rising 800 different children, of whom he had kept a list, and that more than 80 of them had since, to his knowledge, been employed as teachers in district schools, without having had any higher advantages than his school afforded. From these discussions, there has arisen a county association of district school teachers, which promises to prove very useful."

Fairfield Academy,

Established at Fairfield, in the 5th Senate district.

The trustees report, that "immediately after the Regents selected this academy as one for the instruction of common school teachers, arrangements were made for altering and repairing the academy buildings. About $2,000, raised by subscription, have been expended for this purpose. The buildings are now convenient, and in a fine state of repair.

"There have been received from the Regents $400, to assist in procuring additional teachers, which has been expended for that purpose; and also, $309, to assist in procuring apparatus, &c. Only part of this money, ($129,) has yet been expended; partly because some articles could not be procured, and partly because the principal, to whom the laying out of the money has been entrusted, prefers manufacturing, under his own direction, more valuable articles than he could purchase.

"The manufacture of a considerable number of articles of apparatus is now commenced, and will be completed in the spring. The chemical apparatus, belonging to the professor of chemistry, is one of the richest in the country, and will be used for the present. We have commenced a mineralogical cabinet, and shall be able to arrange one in the spring of very considerable value.

"Additional instructors were also appointed. Dr. James Hadley, one of the professors in the Medical College, was appointed Professor of Chemistry and Mineralogy in the academy. Hon. Hiram Nolton, was appointed Professor of Law. He has already commenced, and will give a pretty extensive course of lectures, fitted both for law students and men of general information. Dr. Had-

ley will commence lecturing in May. The principal is preparing lectures on school keeping, and some other subjects connected with the teachers' department, and will commence delivering them the ensuing summer. To enable him to devote more time to these branches, an additional classical teacher, and also, a teacher of penmanship, mapping and book keeping, were appointed.

"With such a body of teachers, the trustees considered their academy prepared for the wants and wishes of the public. But owing, as is believed, to the fact, that the public had not become fully informed as to the object of the Regents in establishing this department, and the requirements made of those entering upon it, none actually became, during the last season, scholars in this department. An apprehension has very extensively prevailed, that the engagement to teach, required of those who would become scholars, is of very high obligation, and that no change of circumstances, could justify them in refusing to teach. We do not think so much is embraced in the promise, and consider, that a young man who has made the promise, in good faith, may find such a change in his condition or prospects, as honorably to acquit him of all censure for refusing to teach. We do, indeed, consider, that an important end in the cause of education will be attained, by educating young men in the manner prescribed, though not one of them should ever teach. It will spread through society men who can judge and advise well on the subject of common schools. This alone is an important consideration, and would, no doubt. have great influence in improving the state of common schools, Much has already been effected on this subject. It is not probable, that by any other means, with so little expense, could the Regents have produced so widely felt an influence in behalf of education. They have directed public opinion to the state of common schools, and the means of improving them, and have, also, raised many higher institutions to very laudable efforts for improving their own condition.

"We consider the year, in the teacher's department, as commencing in the spring, and from present prospects, we think a number will commence the course. We propose to charge them only $3 tuition for the year, of 8 months."

OXFORD ACADEMY,

Established at Oxford, in the 6th Senate district.

The trustees report, that on the 11th April, 1835, they received $682 from the Regents, $400 of which has been paid to the tutor in that department, and the residue, $282, has been expended for apparatus.

"One teacher has been employed, on account of the department, at $400 per annum. The whole annual expense incurred, on account of the department, as near as the trustees are able to estimate the same, is $454.11, independent of the reduction on the tuition of the students in this department. The students in this department have been charged for tuition, $3 per term of fifteen

weeks, and would have been charged for the same studies, $4.33, or $5.66, had they not been in that department. The tuition has been reduced to that sum to induce students to enter the department, and that amount is thought by the trustees to be as low as can be afforded, without further aid for that purpose. Applicants for admission into the teacher's department, are subjected to the same examination as other students, before they are considered scholars in the higher branches of education. A declaration, in writing, of their intention to become teachers, has been required of most of those who have been admitted into this department. The course of study prescribed by the Regents, has in most cases been strictly followed. Algebra has been introduced as a study in that department, for the reason, that it is taught in very many common schools, and most of those students in the deparment wished to study it.

"Whole number of students belonging to the department on the 18th day of December last, was 25.

"Of which number there have been connected with the department for a period not exceeding one term, 17.

"For a period exceeding one, but not exceeding two terms, 8.

"Certificates have been given to all those who have been considered qualified to teach, for the satisfaction of the trustees of the several school districts in which they are severally employed. As those students belonging to the department, are at present engaged in teaching, it is presumed that most of them intend to continue their connexion with it. Some, however, may have left the department on receiving the certificate. The cause of their leaving has not been ascertained. Some may have been deterred from completing the course of study prescribed by the Regents, in consequence of the expense which so long a course of study would incur, and others may have left the department to engage in some business more immediately profitable.

"Board, including washing and lodging, can be obtained for $1.50 or $1.75 per week. Students are charged for tuition, $3 per term of 15 weeks.

"The influence of the plan adopted by the Regents, for the better education of common school teachers, has, in the opinion of the trustees, been salutary wherever it has been felt. The effect of it has been, to produce a greater uniformity in the manner of conducting schools, and it is presumed, also, an improvement in their education.

"It is proper to remark, that from 15 to 20 young men have gone from the academy during the past year, to engage temporarily in the business of teaching, who have not been considered as belonging to the department, and whose names are not included in the list of students therein. The greater part of this number received more or less instruction on the subject of common school teaching, and have been privileged with recitations, apparatus, &c. as though they had belonged to the department.

"All the students of the department, found a very ready employment as teachers, and many applications were made to the academy for teachers, which it was impossible to supply.

"It is the intention to have a course of recitations and lectures at the academy for female teachers for two or three months preceding the commencement of the summer schools. If the attention of female teachers can be called to the subject for that length of time, it is believed that the exercises proposed above will have a happy effect in carrying out the plan of the Regents more effectually, by laying a proper foundation for the teachers of winter schools to build upon. As a great part of primary instruction devolves upon female teachers, it is considered of the highest importance that they be well qualified in the elementary branches."

CANANDAIGUA ACADEMY.

Established at Canandaigua, in the 7th Senate District.

The trustees report, that "this department was opened at the commencement of the second term, May 5, 1835. To make the instruction of the school adequate to the increase of the students, whom the organization of this department might bring to the school, one additional instructor has been employed at a salary of $500. It is proper to state that the instruction peculiar to this department has been given mostly by the principal of this academy.

Amount received from the Regents to endow this department,	$400 00
Do. to purchase apparatus,	164 00
	$564 00
The expense of this department,	500 00

"A contract has been made for an addition to the present academy building of 50 by 40 feet, and three stories high, which, with furniture, &c. will cost $400.

"No written evidence of *intention* to devote themselves to the business of teaching, has been required. The young gentlemen were conversed with, and the fact of their joining the teachers' class was considered sufficient evidence of their intention to prepare themselves to teach. No formal examination of their attainments was made. These were learned by subsequent attention to the branches on which the instructor wished to obtain information. A very free conversation was held, however, with each one who had not been a member of the school. A review of two important branches, Arithmetic and English Grammar, was immediately commenced by all the members of this department, who did not give satisfactory evidence of a perfect knowledge of them. In the course of instruction given, a regard was had to their attainments, and the desires which many expressed to be prepared to teach the subsequent winter, to provide themselves with means to complete the course. No reduction of tuition to this class of students has been made by the trustees; the tuition being low, and the amount of instruction exceeding that given to the other department of the school. To aid indigent young men, a credit is given on their bills till they have taught school one season.

"The members of the teachers' department have been taught in all the branches pursued by them, except those which were pecu-

liar, in connexion with the classes in the English and Mathematical department. The instruction in this manner had been more minute and full than it otherwise could have been.

"To the course of study prescribed by the Regents, Algebra has been added, from the conviction that it affords great aid in Arithmetic, sharpens the invention and improves the facility with which arithmetical problems may be performed. It also enables the teacher to make *formulas*, by which difficult problems in Arithmetic may be solved, thereby learning the reason of many rules, which to another may appear entirely arbitrary. Geometry also depends in some degree upon Algebra.

"Terms—Tuition per quarter,..... $4 00
Room rent do 1 00
Board, per week, ... 1 25
Washing, per dozen, ... 37½"

The principal of this academy states in addition to the above remarks, that he feels bound to express "his fears in regard to the success of the department for teachers to the extent which the friends of it have anticipated. The causes which operate against it in this county are the following:

"1. The wages of teachers are low, and few enterprizing young men will enter the business of teaching as a profession. The wages of teachers of district schools have increased during the last five years from 20 to 25 per cent.

"2. The facilities for more lucrative employments, are very numerous. The spirit of speculation which prevails, the suddenly increased value of real estate in many sections of western New-York, and the consequent sudden fortunes made, lead many young men to leave this State in hope of rapidly riding to wealth on the next surge that may move from some of the thousand new villages springing up in the new States and Territories. The principal cause is believed to be the following:

"3. The qualifications of a teacher will be very nearly in exact *ratio* to the *extent of the subjects* on which he is examined, when about to engage in school keeping. Now it is well known that the subjects on which he is examined are reading, spelling, writing, arithmetic, English grammar, and geography. By passing a tolerable examination in these branches, he can instruct a school which will be entitled to its share of public money. To many, and perhaps most school districts, this is thought to be enough. On this point much might be said.

"*A plan suggested.* After much thought, and with great diffidence, I venture to suggest the following plan:

"Let the subjects on which school teachers are to be examined, be increased from year to year. For example: The Legislature may enact a law that no public money shall be distributed to any school after Nov. 1836, the teacher of which had not sustained a satisfactory examination in the principles of teaching as illustrated in Hall's Lectures on School Keeping, and in Abbott's Teacher, in the Constitution of the State of New-York and of the United States, and in the History of the United States, (so much as is con-

tained in Webster's, or Goodrich's, or Hale's.) To this list, on the succeeding November, should be added book-keeping, (Preston's,) Natural Philosophy, (in Comstock's, Olmstead's abridged work, or any other of equal dimensions.) On the next year Rhetoric, (Blair's, Newman's, or Whateley's,) and Chemistry (Turner's, Comstock's, Eaton's, or Beck's,) should be required. The next year, in addition to the above, Algebra (Colburn's, Day's, Ryan's, or Bonnycastle's,) and Geometry. The next year (1840) Trigonometry, Mensuration, and Surveying. In 1841, Astronomy, with eclipses, and Mineralogy, and the first principles of Geology.

"It is probable that the preceding subjects would be sufficient, embracing as they do nearly all now required to be taught in the department for teachers. It might perhaps be prudent to increase the list more gradually, though it is conceived that the first and second years embrace nothing but what is demanded.

"N. B. The books named to be used, or others equivalent thereto.

"Multitudes of young men throughout the State depend upon teaching school during the winter months, and pursue other employments during the remainder of the year. The attainments of this class of teachers (constituting four-fifths of the whole number) can never be elevated, except by a general sentiment of the whole people. The plan proposed will also elevate the intellectual character of the inspectors, as well as that of the teachers, and through them both, of the whole community. There is no doubt that the class of teachers just referred to must for many years constitute a large portion of the instructors of district schools, and that plan which shall in the most ready and successful manner enlarge the attainments of these as well as of other teachers, is very desirable. To my mind the plan suggested is practicable, and will produce a highly beneficial effect on all our schools, and through them on the community. Without some such increasing standard by which to measure the attainments of teachers, few will be inspired to go through an extended course, and the system now adopted to elevate the character of teachers may fail from the want of an incentive sufficiently powerful to produce the desired results."

Whole number of students in this department Oct. 7, 1835, was 19
Of which number there attended for a period not exceeding
one quarter, ... 5
For a period exceeding one and not exceeding two quarters,.. 9
" " two quarters,..... 8

Exercises in composition and declamation, once in 14 days.

MIDDLEBURY ACADEMY.

Established at Middlebury, in the 8th Senate district.

The trustees report, that for the first endowment of the department, they received $285 from the Regents about the 1st of May, 1836, which was expended in purchasing apparatus.

The trustees further state, that "on the 2d Wednesday of August last, at the commencement of our summer academic term,

George C. Whitlock A. B. was engaged as tutor in this department, at a salary of $400 per annum, which with the necessary repairs of the building for his accommodation, will add to our expenses the current year at least $500.

"The candidates for admission in this department, have passed the examination, given the pledge and pursued the course of study, discipline and exercises prescribed for them by the Regents."

No. belonging to the department at date of report, 5, all of whom entered service since the 2d Wednesday of August last.

This department was organized and opened for the reception of students on the 4th of March last, and Abner Goodall A. B., was appointed tutor, but no scholars were received until the commencement of the services of the present principal as above stated.

All the students belonging to this department have access to any department of instruction in the academy without additional charge. It is contemplated that this department is to be in session 34 weeks in each year; but its teacher is required to continue his labors throughout the entire academic year by assisting in the other departments during the recess of his own; students admitted to this department, must have attained the age of 16 years, and have obtained a proficiency in the preliminary branches of education, and they are also required to sign a written pledge of their intention to become teachers. They are not admitted for any period less than half a term. A standing committee of the trustees visit this department at least once in each term, and report its condition to their board. A committee of three are appointed who, together with the principal and such other persons as they may select, examine the candidates for a diploma, after they have completed the requisite course, and attended not less than six full terms. Any student not attending for a sufficient length of time to entitle him to a diploma, but who has attended at least one full term, receives in the discretion of the faculty, a certificate, stating his proficiency in the several branches of study, and also what branches he is considered by the faculty competent to teach.

The year is divided into two terms, called the spring term and fall term; each term consisting of 17 weeks. The former commences on the 1st Wednesday of March, the latter, the 3d Wednesday in July.

No charge for tuition is made to students completing the whole course of study, to entitle them to a diploma. In conformity to this regulation, no tuition has been charged during the past year, with an expectation of ever receiving it; should the present students complete their course.

Tuition for students attending from 4 to 6 terms, $3 per term.
do do do 1 to 4 do 6.
do do do less than 1 term, at the rate of $8 per term.

The trustees remark in conclusion, "We regret that so few have entered the department. We think no pains have been spared on our part. We have published a circular, and given it a very wide

circulation; we are favored with one of the ablest teachers in the country; our tuition is as low as it can be, and yet young men are afraid of the long time to be spent in the course, and the pledge. The young men we have, are well satisfied, and we hope for better success in future. Our teacher, Mr. Whitlock, is well employed in teaching the natural sciences and the higher mathematics, upon which he lectures with good success. Our repairs are permanent, and will be of use for many years to the institution; and our rooms for apparatus and for lecturing, are now in good order.

True abstracts and extracts.

GIDEON HAWLEY,
Secretary of the University.

SCHEDULE No. 12.

INSTRUCTIONS

From the Regents of the University of the State of New-York, to the several colleges in the State, subject to their visitation; prescribing the requisites and forms of collegiate reports, &c. Prepared in obedience to a resolution of the Regents, of the 4th February, 1835.

EXTRACTS

From the Revised Statutes of the State of New-York:

"The Regents of the University shall prescribe the forms of all returns, which they shall require from *colleges* and other seminaries of learning subject to their visitation; and may direct such forms and such instructions, as from time to time shall be given by them, as visiters, to be printed," &c. (Revised Statutes, part 1, chap. 15, title 1, section 29.)

"Every college and academy that shall become subject to the visitation of the Regents, shall make such returns and reports to the Regents, in relation to the state and disposition of its property and funds, the number and ages of its pupils, and its system of instruction and discipline, as the Regents shall from time to time require." (Revised Statutes, part 1, chap. 15, title 1, section 55.)

At a meeting of the Regents of the University, held on the 4th day of February, 1835, *the following resolution was adopted:*

"*Resolved*, That the Secretary of the University be instructed to prepare and submit for the consideration of this Board, a form for the Annual Reports, required by law, to be made to the Regents, by the several colleges in the State.

In obedience to the above resolution, the Secretary of the University, at a meeting of the Regents, held on the 31st of March, 1835, submitted the draft of a *Form*, for the future Annual Reports of the several colleges in the State, which was adopted, or-

dered to be printed, and sent to all the said colleges; and it was thereupon

Resolved, That the trustees of the several colleges in the State, to whom said form should be sent, be required to make their future annual reports to the Regents of the University, at the close of each collegiate year, or on or before the first day of February thereafter, according to the said form, so far as the same shall be applicable to them respectively.

A true extract from the minutes of the Regents, &c.

GIDEON HAWLEY,
Secretary of the University.

Albany, April 1, 1835.

INSTRUCTIONS, &c.

The following is the form of the Collegiate Reports, referred to on the preceding page:

To the Regents of the University of the State of New-York.

The trustees of college, in compliance with a requisition of the Regents of the University, submit the following report for the last collegiate year, ending on the day of , containing a just and true statement of facts, showing the progress and condition of said college, during and at the close of said year, in respect to the several subject matters following, viz.

I. *Number and description of professorships.*

The professorships in said college during said year, as established by the trustees, were the following:- (Here state each professorship, as known and defined by the statutes of the college; and if any professorship be vacant, state the fact of such vacancy, when and from what cause it occurred, and whether it is the intention of the trustees to fill the same, and when.)

II. *Faculty and other college officers.*

The faculty of said college, including all persons charged with the duty of giving public instruction therein during said year, consisted of a president, &c. (Here state the number of professors, tutors, &c.)

The other officers or servants of said college, charged with duties therein other than those of public instruction during said year, were: (Here state the number of such officers, with a description of their office, &c.)

The names of the several persons holding offices or places in said college during said year, with the offices or places held by them respectively, and the salaries or annual compensation for official services, allowed to each of them, were as follows:

Names of persons.	Professorship or other office held.	Salary.

III. *Number of students.*

The whole number of students, undergraduates in said college, during said year, was: (Here state first the whole number of such students, including as well those who left college during said year, as those who remained to the close of it; and including also, as well those, if any, who were received on probation, as those who were regularly matriculated; and then state the number who left college during the year, from any and what cause, if known, with the number remaining at the close of the year; including as well the seniors or graduates of that year as others.)

The number of graduates at the last annual commencement should then be stated.

The whole number of students in the college at the time of making the report, (if that time be subsequent to the close of the said collegiate year, and after the commencement of the following year,) should then be stated, to enable the Regents to compare present with past numbers, &c.

The number of students (if any,) in said college during said year, who were not undergraduates, should be here stated, with such description or designation as properly belongs to them.

Under this head state whether any students in the college during said year, were under the age of 14 years, and if so, how many; also, what was the average age of the graduates for said year.

IV. *Classification of students.*

The students who were undergraduates in said college during said year, were classified as follows, viz: (Here state first the number and names of the classes, and then state the number of students in each class.)

If there be classes in the college under any other than the common designation of Freshmen, Sophomores, Juniors, and Seniors, the fact should be particularly stated, with the number and pursuits of the students in such classes.

So also, if there be any students in the college, not coming under the designation of undergraduates, such as students in theology, law, or medicine, their classification, &c., should be here stated.

V. *College terms or sessions.*

The terms or sessions for studies in said college during said year, were the following: (Here state the number of terms, the length of each, when it commenced and ended, and how much vacation there was during said year.)

VI. *Subjects or course of study.*

The subgraduate course of study in each class in said college during said year, was as follows: (Here state the course of each class, beginning with the freshmen, for each term in the year, beginning with the first term, designating in each term, *specifically*, the subjects studied by each class, the text books used, and the extent to which each subject was studied, specifying such extent

by the number of pages, or proportion of the text book studied, or by other suitable description; and if lectures be given to the class during said term on any subject, designate such subject, with the number and frequency of the lectures on it, and the part or proportion they constitute of a full course of lectures on such subject.)

If subjects of study be pursued in the college, which are not subgraduate, either by reason of their not being strictly classical, such as a particular or partial course in mathematics, &c., or by reason of their being superior to a subgraduate course, such as theology, law, or medicine, the same designation should be given of the particular subject studied, the text books used, extent of study pursued, lectures, &c., in each class, during each term, &c.

VII. *Exercises.*

Under this head, state how often the students in the college were exercised during said year, in composition and declamation in the English language, or in any other and what language, and what criticism such exercises were subjected to; also, whether any other exercises were required of, and performed by them during said year, such as, extemporaneous speaking, or debating, gymnastic, or military exercises, &c.; also, how far exercises in reading or in any other of the primary arts connected with education, were required during said year.

VIII. *Examinations.*

Under this head, state the number of public examinations in the college during said year, when and how long each one was held, and by whom conducted; whether all the classes were examined in all the subjects of study pursued by them subsequent to the last previous examination, if not, what were the omissions, and for what cause.

IX. *Mode of instruction.*

Under this head, state what was the general process of instruction adopted in the college during said year, whether that of *analysis and recitation from text books*, or that of *public lectures*, or *both*, and in what relative proportions. If public lectures were given, state on what subjects, whether the students were required to take notes of them, and what test was applied to ascertain the extent of knowledge acquired by them from such lectures; also, state how often on an average the students were required to recite, or attend lectures.

X. *Discipline.*

Under this head, state the general principles of discipline adopted in the college during said year; what was the general nature of the punishments inflicted; whether any and what discrimination of the relative merits of students was made, either in respect to scholarship, or behavior, or both, and what evidence of such merits was preserved, or made public.

XI. *Gratuitous aid.*

Under this head, state what provision is made in the college for the gratuitous education of indigent students, or for any other assistance to such students, what number of students during said year were educated, in whole or in part, gratuitously, or otherwise assisted out of such funds, or in any other manner.

XII. *Statutes or by-laws of the college.*

The foregoing form of a collegiate report, requires each college to state in its annual report, specifically, what was ACTUALLY DONE in the college during its last collegiate year, in reference to the most important subject matters of its proceedings during that year.

A copy of the statutes or by-laws of the college, as the same were in force during said year, should be transmitted with the first collegiate annual report, to be hereafter made to the Regents of the University, that it may be seen what was required by such statutes to be done during said year. But after the first annual report, to be made in pursuance of these instructions, and to be accompanied with a copy of said by-laws, a second copy need not be transmitted with subsequent reports, provided the alterations, if any, in the by-laws first sent be noted, &c.

XIII. *Description and value of college buildings.*

Under this head, state,

1st. The number, general extent and value of the college buildings and grounds appurtenant thereto.

2d. The number of books in the college library, with their general state of preservation, and estimate of value in the aggregate.

3d. A general description of chemical and philosophical apparatus, &c., belonging to the college, (without designating particulars,) with an estimate of their value in the aggregate.

State the total amount of the above values, to show the whole amount, in value, of the college property used as permanent or fixed capital for purposes of instruction, &c.

XIV. *Description and value of other college property.*

Under this head, give a general description and value of the property and funds of the college, other than what is included under the last preceding head, distinguishing real from personal property; and stating the different kinds of personal property, such as bonds and mortgages, bank and other stock, &c., giving the general amount and value of each kind of property; and if any of the college funds be appropriated for any particular purpose, or are required to be kept invested in any particular manner, state the amount of such funds, and whether they are applied to such purpose, or are invested in the manner required.

State, in one sum, the total estimated value of all the property described under this general head, after making all proper deductions for depreciation, insufficient securities, &c.

XV. *Revenue.*

Under this head, state,

1st. Amount charged for tuition of students in the college during said year, which has been collected or is considered collectable.

2d. Amount charged for room rent of students, use of library, &c., during said year, which has been collected or is considered collectable.

3d. Interest or income of the permanent funds of the college, accrued during said year, which has been collected or is considered collectable.

4th. Income from any other and what source. State, in one sum, the total amount of revenue from all the above sources.

XVI. *Debts.*

State the whole amount of debts contracted by the trustees of the college, and remaining unpaid at the close of the last collegiate year; and if any debts were contracted during said year, state for what cause, or on what account they were contracted; and state, also, the amount of interest accrued on said debts for said year.

XVII. *Income and expenditures.*

Under this head, compare the whole income of the college, collected or collectable, with its whole expenditures, paid or payable, for said year, to be stated summarily to show how the balance of the account stands.

XVIII. *Price of tuition, &c.*

Under this head, state the particular prices charged for tuition, for room rent and contingent expenses; also, a general estimate of all other *necessary* annual expenses of a student in said college.

XIX. *Remarks.*

Under this head, can be stated any remarks which the trustees may have to make on any of the foregoing topics; also under this head, may be stated, any suggestions which the trustees or faculty of the college may think proper to submit, on any subject connected with their particular institution, or with the general cause of education.

XX. *Close of report.*

As the annual report of the college must hereafter be made by, or under the authority of, its trustees, (and not as has heretofore generally been done by the treasurer, or secretary alone,) it will be necessary to state, *affirmatively*, at the close of the report, on what authority it is made, &c. If it be made by the trustees at a regular meeting held by them, (which would be the most regular way,) it should be signed by the presiding officer of the board of trustees, for and in their behalf, and the seal of the college should be affixed to it. If the report be made by a committee of the board of trustees, appointed *especially* for that purpose, in should be signed by such committee in behalf of the trustees, and their appointment to make the report should be expressly stated. In either

case, the treasurer and secretary of the college should subscribe the report, and affix or impress the corporate seal on it, &c.

A true copy.

GIDEON HAWLEY,
Secretary.

Albany, April 1st, 1835.

AN ABSTRACT

OF THE

RETURNS

OF

METEOROLOGICAL OBSERVATIONS

MADE TO THE

REGENTS OF THE UNIVERSITY,

FOR THE YEAR 1835,

BY

Sundry Academies in this State,

IN OBEDIENCE TO INSTRUCTIONS, DATED

MARCH 1, 1825.

ACADEMIES.

List of Academies reporting.	Towns.	Counties.	Time for which they report.	Observers.
Albany,	Albany,	Albany,	The whole year,	T. Romeyn Beck, M D., Principal.
Auburn,	Auburn,	Cayuga,	do	Allen Fisk, Principal.
Bridgewater,	Bridgewater,	Oneida,	do incomplete,	Hiram Wheeler and Thomas J. Ruger, Teachers.
Cambridge Washington,	Cambridge,	Washington,	do	W. D. Beattie, Principal.
Canajoharie,	Canajoharie,	Montgomery,	do incomplete,	Wm. Parker, Principal.
Canandaigua,	Canandaigua,	Ontario,	do	Henry Howe, Principal.
Cayuga,				
Cherry-Valley,	Cherry-Valley,	Otsego,	do	Rev. John Smith, Principal.
Clinton,	East-Hampton,	Suffolk,	do	Daniel Dayton, Esq., Trustee.
Cortland,	Homer,	Cortland,	do	George W. Bradford, M. D.
Delaware,	Delhi,	Delaware,	do incomplete,	E. H. Cressey, Principal.
Dutchess,	Poughkeepsie,	Dutchess,	do	L. C. Holcomb, Wm. Atwill, W. Burr, A. B. Holcomb and
Erasmus Hall,	Flatbush,	Kings,	do	Wm. H. Campbell, Principal. [J. Cooley.
Fairfield,	Fairfield,	Herkimer,	do	D. Chassell, Jr.
Farmers' Hall,	Goshen,	Orange,	do	Nathan Stark, Principal.
Fredonia,	Pomfret,	Chautauque,	do	Henry Chaney, Principal.
Gouverneur,	Gouverneur,	St. Lawrence,	do	Jesse H. Tyler, Erwin S. Barnes and Andrew J. Haile.
Granville,	North-Granville,	Washington,	do	John C. Parker, Esq., Trustee.
Hamilton,	Hamilton,	Madison,	do incomplete,	Zenas Morse and Alvin Lathrop, Principals.
Hartwick,	Hartwick,	Otsego,	do	Rev. Geo. B. Miller, Principal.
Hudson,	Hudson,	Columbia,	do	Jas. W. Frisbie, A. M. Vedder and C. C. Joslin.
Ithaca,	Ithaca,	Tompkins,	do incomplete,	Wm. A. Irving, Principal.
Johnstown,	Johnstown,	Montgomery,	do	J. G. Smart, Rev. A. Amerman and Peter Burke, Princ'ls.
Kinderhook,	Kinderhook,	Columbia,	do	Silas Metcalf, Principal.
Kingston,	Kingston,	Ulster,	do	J. A. Blauvelt, Principal.
Lansingburgh,	Lansingburgh,	Rensselaer,	do	W. H. Hadley and E. B. Janes, Principals.
Lewiston,	Lewiston,	Niagara,	do incomplete,	M. H. Fitts, Principal.
Lowville,	Lowville,	Lewis,	do	Henry Maltby, Principal.
Middlebury,	Middlebury,	Genesee,	do	Seth Cushing, Jr., Teacher.
Monroe,	Henrietta,	Monroe,	do	J. Smith Whitaker, Principal.
Montgomery,	Montgomery,	Orange,	do	Jacob C. Tooker, Principal.
Mount-Pleasant,	Mount-Pleasant,	Westchester,	do	Albert Wells, Principal, and E. D. G. Prime, Teacher.
Newburgh,	Newburgh,	Orange,	do	Albert Wells and S. J. Prime, Teachers.
North Salem,	North-Salem,	Westchester,	do	John C. Jones, Principal.
Oneida Conference Seminary,	Cazenovia,	Madison,	do	
Oneida Institute,	Whitestown,	Oneida,	do	Isaac S. Platt.
Onondaga,	Onondaga,	Onondaga,	do	J. L. Hendrick, Principal.

ACADEMIES, (*Continued.*)

List of Academies reporting.	Towns.	Counties.	Time for which they report.	Observers.
Oxford,	Oxford,	Chenango,	The whole year,	Merritt G. McKoon, Principal.
Oysterbay,	Oysterbay,	Queens,	do (ex. May,) incomp.	Noah H. Wells, Principal.
Palmyra,	Palmyra,	Wayne,	do	James F. Cogswell, Principal.
Pompey,	Pompey,	Onondaga,	do	Samuel S. Stebbins, Principal.
Redhook,	Redhook,	Dutchess,	do incomplete,	J. O. Norton, Principal.
Rochester,	Rochester,	Monroe,	do	A. G. Warner and others.
St. Lawrence,	Potsdam,	St. Lawrence,	do	Justin B. Taylor and Samuel R. Thrall.
Schenectady,	Schenectady,	Schenectady,	do incomplete,	Asa Sheldon.
Springville,	Concord,	Erie,	do do	L. Parsons, Principal, A. C. Lake and C. A. Parsons.
Union,	Ellisburgh,	Jefferson,	do	H. H. Barney, Principal, L. G. Parker and D. W. Little-field.
Union-Hall,	Jamaica,	Queens,	do	Charles Leech,
Utica,	Utica,	Oneida,	do	D. Prentice, Principal.

JANUARY, 1835.

ACADEMIES.	THERMOMETER.					WINDS, (NO. OF DAYS.)								WEATHER, (NO. OF DAYS.)					Rain gage.
	Mean temperature.		Highest degree.	Lowest degree.	Range.	North.	N. East.	East.	S. East.	South.	S. West.	West.	N. West.	Clear.	Cloudy.	Rain.	Snow.	Rain&Snow.	
	1st half.	2d half.																	
Albany,	9 18	33.93	49	—23	72	5½	....	....	3	6½	1½	7½	7	18	13	3	4	3	4.64
Auburn,	20.02	36.16	50	— 6	56	....	2½	½	2½	8½	2½	6½	8	12½	18½	2½	1	....	1.77
Bridgewater,	10.04	30.53	54	—31	85	1	....	1	1½	7	4	9½	7	....	....	2½	1½	1½	4.10
Cambridge Washington,	6.54	32.45	53	—36	89	10	....	½	½	5	7	3	5	16	15	3	1½	1½	4.25
Canajoharie,	6.04	31.68	46	—36	82	½	....	1½	3½	2½	2	13	8	16	15	4	3½	....	2.70
Canandaigua,	16.12	30.40	46	— 6	52	5	1	1	1½	10	2	5½	5	9	22	3	4	½	2.64
Cherry-Valley,	11.26	31.01	49	—30	79	1½	1½	½	....	3½	8½	11½	4	16½	14½	3½	2½	1	3.24
Clinton,	22.46	36.35	50	— 8	58	3	8	2	4	2	2½	7	2½	22½	8½	1½	....	....	2.45
Cortland,	12.86	32.03	45	—24	69	2	....	...	3	10	4	8	4	11½	19½	4	3½	....	
Dutchess,	10.39	35.77	50	—30	80	7½	2½	....	13	1	1½	....	5½	24	7	4	....	...	3.55
Erasmus-Hall,	21.49	40.38	53	— 6	59	8½	3	½	3	....	3	5	8	25	6	2½	....	....	2.65
Fairfield,	15.73	30.33	53	—21	74	....	1	7½	4	....	½	4	14	10	21	3½	3	....	1.82
Farmers' Hall,	8.79	34.34	49	—30	79	½	3½	....	....	5	14	5½	2½	21	10	3	....	....	3.30
Fredonia,	23.53	35.98	51	0	51	1	3½	1½	4	5½	13	½	2	11½	19½	9	2	....	.99
Gouverneur,	9.27	30.13	46	—35	81	3½	2½	....	2½	3½	7	6½	5½	17	14	4	3½	½	5.80
Granville,	7.16	32.45	48	—31	79	18½	½	....	1	....	9	1	1	13½	17½	3½	½	1	2.99
Hamilton,	11.79	31.70	56	—34	90	3	....	....	....	4½	7½	1½	14½	15	16	1½	1	....	2.17
Hartwick,	16.09	31.27	48	0	48	1	....	....	....	15½	3½	....	11	15	16	1½	1½	1	2.53
Hudson,	8.16	34.33	50	—24	74	6	2	1½	5½	5½	1	2½	7	20½	10½	3½	½	....	4.60
Ithaca,	16.41	37.35	50	—12	62	10½	....	....	2	18½	....	....	....	14	17	2	....	....	.20
Johnstown,	6.57	30.09	40	—30	70	....	6	2½	3	....	4½	13½	1½	14½	16½	3½	2½	1	3.76
Kinderhook,	6.50	39.41	48	—24	72	12	½	....	1½	7	½	8½	1	17	14	4½	1	1	3.73
Kingston,	10.75	36.53	52	—30	82	4	13	1	½	2	6	1	3½	21	10	4	1	....	3.94
Lansingburgh,	10.43	34.21	46	—28	74	1	....	....	....	3½	10½	6½	9½	18	13	2½	....	....	.25
Lewiston,	22.88	35.96	50	1	49	2	2½	1	2½	5	15	2	1	13½	17½	3	3	....	3.31
Lowville,	12.11	30.90	46	—31	77	8½	3	....	½	8	½	7	3½	11	20	4	4½	....	3.02
Middlebury,	19.71	33.94	51	— 7	58	6½	1½	....	½		20	1	1	12½	18½	2	1	....	1.48
Monroe,	21.15	34.38	54	— 5	59	2	3	1½	1	11½	7	3½	1½	14½	16½	4	3½	....	1.28
Montgomery,	20.36	35.09	64	—33	97	12	2½	....	1½	1½		9	4	17½	13½	3	....	....	4.25

JANUARY, (*Continued.*)

ACADEMIES.	THERMOMETER.					WINDS, (NO. OF DAYS.)								WEATHER, (NO. OF DAYS.)					Rain gage.
	Mean temperature.		Highest degree.	Lowest degree.	Range.	North.	N. East.	East.	S. East.	South.	S. West.	West.	N. West.	Clear.	Cloudy.	Rain.	Snow.	Rain&Snow.	
	1st half.	2d half.																	
Mount-Pleasant,	14.87	39.55	52	— 8	60	9½	1	½	5	1½	½	1	12	24½	6½	3	....	....	4.51
Newburgh,	8.99	38.32	51	—27	78	2	13½	....	...	6	5	1½	3	20	11	4	½	....	3.05
North-Salem,	13.55	35.72	52	—31	83	2	2	1	3	1½	4	5	12½	25	6	5½	....	....	6.12
Oneida Conference Seminary,	12.50	31.29	44	—26	70	....	½	....	....	5	9½	5½	10½	11½	19½	2	1½	....	1.44
Oneida Institute,	11.51	30.73	43	—33	76	....	....	12	1½	½	1	14	2	9½	21½	3	2	1	1.77
Onondaga,	16.00	35.39	49	—18	67	½	....	2	4½	5½	4	8	6½	11½	19½	3	2	....	.93
Oxford,	10.76	32.92	51	—35	86	9½	1	...	....	3½	7½	8	1½	15½	15½	4½	3½	1	2.35
Oysterbay,	21.76	39.44	53	— 2	55	1½	6½	½	3	....	6	3½	10	24½	6½	4	....	....	3.45
Palmyra,	18.25	33.62	48	— 9	57	4½	1	2½	5½	1	1½	7	8	8½	22½	3½	....	....	1.22
Pompey,	15.93	29.54	55	—17	72	....	....	....	1½	7½	8½	8½	5	12	19	2	....	....	2.04
Redhook,	7.17	35.61	47	—28	75	16½	½	....	....	9½	½	....	....	22	9	3	....	....	4.25
Rochester,	27.72	34.58	50	— 4	54	3	1	....	4	½	11½	5	6	12½	18½	3	4	....	1.15
St. Lawrence,	10.91	30.13	48	—30	78	2	8½	1	½	1½	10	3	4½	14½	16½	1½	5	½	1.43
Spingville,	24.55	33.29	57	— 8	65	1½	2½	....	3½	4	2½	6½	10½	10½	20½	3½	2½	...	.90
Union,	16.22	33.65	50	—28	78	1½	5½	2½	1½	9½	4	5½	1	11½	19½	3½	½	½	1.60
Union-Hall,	19.97	37.67	57	— 3	60	10	3½	1½	2	3	1	4	6	24½	6½	3½	....	...	3.15
Utica,	11.52	35.17	49	—26	75	....	....	7	3½	½	....	20	....	15½	15½	....	....	....	3.31

FEBRUARY, 1835.

ACADEMIES.	THERMOMETER.					WINDS, (NO. OF DAYS.)							WEATHER, (NO. OF DAYS.)					Rain gage.
	Mean temperature.		Highest degree.	Lowest degree.	Range.	North.	N. East.	East.	S. East.	South.	S. West.	West.	N. West.	Clear.	Cloudy.	Rain.	Snow.	Rain&Snow.	
	1st half.	2d half.																	
Albany,	15.83	27.56	46	— 4	50	3	1	....	1	8	2½	6½	6	14	14	2	7	....	1.79
Auburn,	15.99	28.75	49	0	49	....	2	....	4	2	6½	3	10	11½	16½	½	7	1	1.47
Bridgewater,	10.86	25.74	48	—18	66	....	....	....	3	7	8	8½	1	....	....	1	4	....	5.01
Cambridge Washington,	12.38	25.65	45	—13	58	8	2½	1½	....	1	4½	4½	6	12½	15½	½	4½	....	2.15
Canajoharie,	10.65	26.17	50	—16	66	½	....	3	4	½	....	8	12	10	18	1½	5	....	
Canandaigua,	14.71	21.49	36	— 4	40	6½	....	½	1	7½	3	4	5½	7	21	....	8	....	3.95
Cherry-Valley,	11.50	26.03	49	— 6	54	4	½	....	½	7	5½	7½	3	12½	15½	½	5½	....	1.46
Clinton,	21.67	30.35	46	3	43	1	6	2	1	....	3	6	9	15½	12½	1	1	....	1.62
Cortland,	10.25	25.07	46	— 8	54	½	1	....	3	5	5	4½	9	9½	18½	½	6½	....	
Dutchess,	19.07	30.04	47	— 1	48	3	4½	....	6½	....	8	....	6	13½	14½	1½	4½	....	1.28
Erasmus Hall,	23.48	33.03	54	2	52	....	7	....	½	....	5	3½	12	17	11	2	3	....	1.29
Fairfield,	8.59	21.44	44	—17	61	....	1	10½	....	....	½	8	8	9	19	1½	9	....	2.25
Farmers' Hall,	15.42	30.50	48	— 5	53	2	4	....	½	½	9½	10	1½	16	12	1½	½	1	.95
Fredonia,	13.91	26.57	47	— 4	51	½	2½	....	....	4	14½	5½	1	10½	17½	2	12	....	2.59
Gouverneur,	6.47	21.40	41	—29	70	4	3½	½	....	....	9½	6	4½	14½	13½	2	5½	....	2.22
Granville,	16.10	25.78	42	—11	53	10	½	....	....	....	14	1	2	10	18	1	3	....	1.08
Hamilton,	12.57	25.03	48	—12	60	1	....	....	....	½	10	....	16½	10	18	....	4	....	2.50
Hartwick,	13.78	26.85	48	0	48	....	2½	1	½	8	1	1½	13½	11½	16½	1	4	½	1.26
Hudson,	14.37	27.61	48	— 6	54	4	3	....	5	4	....	4	8	16	12	....	2½	....	.65
Ithaca,	13.86	28.71	58	— 8	66	10½	....	....	½	13½	½	1	2	9½	18½	1	7	....	1.62
Johnstown,	10.55	24.13	44	—18	62	....	5	3½	1	....	½	17	1	9½	18½	1½	4	....	1.98
Kinderhook,	13.77	27.24	48	— 8	56	9	½	½	....	7½	½	2	8	7½	20½	1½	3	½	1.31
Kingston,	19.46	31.16	46	— 3	49	1½	9½	....	....	3½	5	2½	6	12	16	2	4	½	1.20
Lansingburgh,	17.47	29.71	44	0	44	1	....	....	2½	1½	6	11½	5½	8½	19½	½	1½	....	1.30
Lewiston,	17.00	29.38	48	— 1	49	2	4	1	½	2½	15	1	2	10½	17½	1½	5	....	2.30
Lowville,	9.05	23.55	45	—23	68	4½	3	2½	6	3	2	4	3	8	20	2	5½	½	2.40
Middlebury,	13.55	24.59	52	— 8	60	½	2	....	....	....	16	6	3½	14	14	1½	3½	....	1.58
Monroe,	14.71	26.52	50	— 5	55	1½	....	....	1	11½	9	4	1	14	14	1½	8½	....	1.34
Montgomery,	16.40	31.65	46	— 7	53	2	1½	....	2	2	3	5	12½	14	14	2	3	1	1.37

FEBRUARY, (*Continued*)

ACADEMIES.	THERMOMETER.					WINDS, (NO. OF DAYS.)								WEATHER, (NO. OF DAYS.)					Rain gge.
	Mean temperature.		Highest degree.	Lowest degree.	Range.	North.	N. East.	East.	S. East.	South.	S. West.	West.	N. West.	Clear.	Cloudy.	Rain.	Snow.	Rain&Snow.	
	1st half.	2d half.																	
Mount-Pleasant,	19.28	32.16	52	2	50	2	8	....	1½	3	1½	2	10	18½	9½	1	2½	1	2.30
Newburgh,	17.37	29.09	52	— 4	56	1	12	....	....	4	6½	3	1½	12½	15½	1	3	....	1.15
North-Salem,	17.09	28.34	51	—12	63	1½	4½	....	1	1	5½	6	8½	17½	10½	1½	3½	1	.32
Oneida Conference Seminary,	10.30	23.18	40	—12	52	....	2	½	1	....	9	7	8½	10½	17½	½	7	½	1.61
Oneida Institute	12.39	23.41	46	—12	58	....	....	5	½	2	5	13	2½	11	17	3	3	1	1.37
Onondaga,	15.72	28.52	53	— 6	59	½	3	1	2	4½	5	7½	4½	9	19	1	6½	....	1.43
Oxford,	11.74	26.49	51	—13	64	3½	2	½	....	5½	5½	8½	2½	7½	20½	1½	8	½	1.68
Oysterbay,	22.31	31.87	56	4	52	....	8½	...	1	....	6½	4	8	16½	11½	½	3	1	.55
Palmyra,	14.23	26.52	53	— 2	55	½	½	...	4	½	7	6	9½	10½	17½	....	4½	....	.85
Pompey,	10.09	24.99	47	— 5	52	....	....	...	....	5½	8	13½	1	8	20	1½	6	....	3.05
Redhook,	19.99	26.65	47	— 8	55	13½	1½	1	....	11	....	1	....	9½	18½	....	1	....	
Rochester,	14.33	28.00	47	— 7	54	....	1½	2	3	....	8	10½	3	12½	15½	1	10½	....	.81
St. Lawrence,	8.16	21.67	44	—28	72	1½	4½	....	....	½	12	2½	7	14½	13½	1½	6	....	1.53
Springville,	14.14	28.74	50	— 4	54	....	....	....	....	½	7½	16	4	6	22	1½	9½	....	3.40
Union,	12.19	26.85	47	—12	59	4	5	1	1	5½	4½	4½	2½	4½	23½	1½	10	....	3.13
Union-Hall,	20.85	30.99	56	6	50	2½	8	....	½	½	2½	6	8	13½	14½	2½	3½	....	.63
Utica,	13.61	26.89	50	—12	62	....	....	2	4½	1½	3	17	....	15½	12½	....	....	....	1.79

MARCH, 1835.

ACADEMIES.	THERMOMETER. Mean temperature. 1st half.	2d half.	Highest degree.	Lowest degree.	Range.	WINDS, (NO. OF DAYS.) North.	N. East.	East.	S. East.	South.	S. West.	West.	N. West.	WEATHER, (NO. OF DAYS.) Clear.	Cloudy.	Rain.	Snow.	Rain&Snow.	Rain gage.
Albany,	30.15	35.19	56	5	51	4½	....	....	....	11	2	6	7½	17½	13½	2	5	....	2.60
Auburn,	29.77	36.04	53	1	52	2	3	....	4	4½	7½	2	8	15½	15½	½	2	1½	1.77
Bridgewater,	26.67	32.80	55	—10	65	1	½	1½	3½	4	4½	12	4	....	....	....	4½	1	4.96
Cambridge Washington,	27.03	33.92	56	— 3	59	10	2½	...	....	1	3½	7	7	15	16	....	2½	....	2.20
Canajoharie,	24.76	32.88	57	— 6	63	....	....	6½	4	1½	1	8½	9½	13½	17½	3	5½	....	
Canandaigua,	17.37	30.34	47	— 8	55	1½	½	1	1	8	4	12½	2½	9	22	3	5	....	3.12
Cherry-Valley,	28.24	31.99	53	— 2	55	4	4	1	....	4	4	11½	2½	15½	15½	½	5	....	2.10
Clinton,	28.54	38.19	55	— 2	53	3½	3½	3	2½	1	2	5	10½	22½	8½	3½	1	½	4.22
Cortland,	26.07	34.41	60	— 8	68	....	1	....	2½	5	7	8	7½	14	17	½	3	....	
Dutchess,	31.98	38.72	61	5	56	½	5	...	10½	2½	4	1½	7	17½	13½	1	3	1	2.74
Erasmus Hall,	31.48	42.35	61	4	57	2½	5	....	1½	½	7	1	13½	24½	6½	2½	1½	½	4.71
Fairfield,	20.92	29.45	49	— 6	55	....	....	11½	1½	½	....	10½	7	10½	20½	½	7	....	1.63
Farmers' Hall,	28.93	37.52	60	5	55	½	4	1½	1	3	12½	6½	2	22	9	½	2	....	1.69
Fredonia,	29.32	36.35	62	— 5	67	2	....	....	2	4	19	3	1	22	9	2	5	....	1.62
Gouverneur,	25.12	30.72	53	—13	66	2½	7½	....	....	2	8½	4½	6	17	14	....	3	....	3.25
Granville,	29.51	31.75	56	— 4	60	13	½	....	1	....	13½	1	2	14	17	....	3	....	1.20
Hamilton,	26.65	32.60	52	—15	67	....	½	1	½	½	14½	½	13½	17½	13½	....	1	....	1.90
Hartwick,	26.60	33.67	54	0	54	....	....	½	½	14	....	2½	13½	15	16	....	3½	....	1.07
Hudson,	28.64	36.05	55	4	51	3½	4½	½	3	5	1	7	6½	21	10	....	3½	1	2.45
Ithaca,	27.95	37.05	62	— 2	64	15½	½	....	3	9½	....	....	2½	19½	11½	3	2	½	2.43
Johnstown,	26.31	34.12	50	— 8	58	1	2½	7	½	....	1½	17½	1	14	17	....	4	1	3.42
Kinderhook,	28.64	34.14	59	0	59	11	½	1	1	9	1	2	5½	16½	14½	1	4½	½	2.65
Kingston,	32.54	38.27	58	10	48	4½	8½	½	½	4	6½	3½	3	18½	12½	1½	1½	1½	2.33
Lansingburgh,	32.12	38.04	54	8	46	4	....	....	1	5	7	8	6	18	13	...	2½	....	.17
Lewiston,	26.01	44.07	60	4	56	2	4½	½	1	1	16	4½	1½	11	20	½	2½	....	.75
Lowville,	25.15	31.44	52	—16	68	11½	....	4½	1½	4	....	8	1½	13	18	....	2½	....	1.35
Middlebury,	29.17	36.58	60	— 7	67	5½	3½	....	....	....	18	½	3½	18½	12½	1	1½	1	2.25
Monroe,	29.54	35.66	54	0	54	3½	5	1	1½	...	11	6½	2½	18½	12½	2½	2	....	1.06
Montgomery,	30.47	31.54	63	3	60	5½	5½	....	1½	....	4	7	7½	14½	16½	½	2	1	1.70

MARCH, (*Continued.*)

ACADEMIES.	THERMOMETER.					WINDS, (NO. OF DAYS.)								WEATHER, (NO. OF DAYS.)					Rain gage.
	Mean temperature.		Highest degree.	Lowest degree.	Range.	North.	N. East.	East.	S. East.	South.	S. West.	West.	N. West.	Clear.	Cloudy.	Rain.	Snow.	Rain&Snow.	
	1st half.	2d half.																	
Mount-Pleasant,	30.19	39.33	57	5	52	1	4½	1	2	11½	....	2	9	22	9	2	2	1	2.26
Newburgh,	31.16	40.65	65	3	62	1	13	....	1	5	6	2½	2½	18½	12½	....	2½	1	2.15
North-Salem,	27.98	37.69	58	— 7	65	1	8	1	½	4	7½	3	6	23½	7½	1	2½	2	1.77
Oneida Conference Seminary,	26.00	33.04	50	—11	61	½	3	....	1	3	5	7	11½	14½	16½	½	....	....	.56
Oneida Institute,	27.08	32.07	53	—13	66	½	....	10	½	1½	1	15	2½	17½	13½	1	2	1	1.29
Onondaga,	30.23	37.21	58	— 5	63	....	1½	1	3	5	3½	8½	8½	12	19	2½	1	½	1.31
Oxford,	27.43	34.65	57	—11	68	5	3	½	....	3½	5	9½	4½	12	19	1	4½	1½	1.93
Oysterbay,	31.65	42.36	66	10	56	3	7	½	1	....	10	3	6½	22	8	3	2	1	3.42
Palmyra,	28.42	32.95	54	— 1	55	3	2	1	7½	2½	6½	2	6½	12½	13½	2	1½	....	1.65
Pompey,	27.27	31.86	58	— 3	61	2½	....	....	2½	4½	8½	8½	4½	14½	16½	....	4	....	2.95
Redhook,	28.95	35.86	60	4	56	12½	2½	2½	....	10	....	2½	1	15½	15½	½	3½	....	1.66
Rochester,	30.18	36.45	64	0	64	2½	3½	3	3½	....	7	7	4½	18	13	2½	4	....	.69
St. Lawrence,	26.26	29.35	57	—12	69	2	7½	....	1	½	11	3	6	17½	13½	1½	2½	....	.47
Springville,	33.31	38.60	70	— 7	77	2½	2½	....	1	½	5	12	7½	12	19	½	2	....	2.56
Union,	27.94	35.76	57	—22	79	5	3	½	1	4	8	7½	2	13	18	....	3½	....	.70
Union-Hall,	29.60	39.80	57	21	36	3½	6½	1	1½	1½	3½	5	8½	21½	9½	3	1	1	2.17
Utica,	27.64	39.52	54	— 8	62	....	....	5½	3	....	5½	17	....	24	7	....	....	....	1.93

ACADEMIES.	THERMOMETER.					WINDS, (NO. OF DAYS.)								WEATHER, (NO. OF DAYS.)					Rain gage.
	Mean temperature.		Highest degree.	Lowest degree.	Range.	North.	N. East.	East.	S. East.	South.	S. West.	West.	N. West.	Clear.	Cloudy.	Rain.	Snow.	Rain&Snow.	
	1st half.	2d half.																	
Albany,	46.11	42.39	70	22	48	4½	½	....	1½	9½	2½	6	5½	17	13	7	3	2	4.54
Auburn,	46.54	41.68	70	16	54	2½	3½	....	5½	6	1½	4½	6½	15	15	5½	3½	2	4.68
Bridgewater,	42.35	36.52	75	21	54	...	½	3½	3½	5½	2½	14	½	....	....	2½	3½	2½	11.31
Cambridge Washington,	43.42	40.61	67	17	50	6½	3½	½	....	½	7½	7½	4	13½	16½	5	...	2	1.95
Canajoharie,	43.85	38.53	70	22	48	....	½	11	2	1	....	7½	8	10½	19½	6½	2½	2	
Canandaigua,	35.89	39.94	52	22	30	....	....	½	½	6½	8	11	3½	13	17	6	8	1	3.76
Cherry-Valley,	45.68	38.74	72	20	52	3	5½	1	1	2½	3½	13½	....	12½	17½	2½	7½	....	3.43
Clinton,	42.93	40.76	70	24	46	1	1½	6	5	4	2	4	6½	17½	12½	4½	½	....	5.69
Cortland,	43.73	38.68	78	10	68	1	½	....	2½	8	2½	7	8½	13½	16½	3½	5	....	
Dutchess,	47.69	47.15	76	24	52	2	½	....	10½	1	5	2	9	12½	17½	8	5	....	5.03
Erasmus Hall,	46.36	44.77	71	27	44	½	4½	1½	3	2½	7	1	10	17	13	3½	½	....	6.22
Fairfield,	40.99	36.60	66	10	56	....	....	12	½	....	....	11	6½	9½	20½	2½	6	½	1.68
Farmers' Hall,	44.82	40.72	70	25	45	½	3½	2	1	6	13½	2½	1	18½	11½	2	1½	....	3.42
Fredonia,	46.44	40.80	74	22	52	....	2	....	1	2½	16½	7	1	15	15	9	5	1	1.68
Gouverneur,	45.32	38.07	78	13	65	1	2	...	....	2½	7½	3	14	16	14	3½	2½	....	8.25
Granville,	42.51	41.02	70	16	54	8½	3	....	½	1	11	2	4	15½	14½	4½	½	1	3.36
Hamilton,	44.37	39.11	76	15	61	....	2	....	1	1	13½	....	12½	14½	15½	2½	2	1½	5.05
Hartwick,	44.69	39.05	72	20	52	1	....	....	....	10½	1½	5½	11½	14	16	3	3½	1	3.78
Hudson,	43.74	38.46	67	20	47	4½	5½	1	4½	3	2½	1½	7½	13	17	5	1½	....	4.50
Ithaca,	41.81	40.95	78	22	56	12	....	....	2½	12½	....	....	3	15½	14½	11	2½	....	3.10
Johnstown,	43.32	38.96	67	23	44	....	2½	9½	1½	....	1	15½	....	11	19	4½	3½	2	4.42
Kinderhook,	44.33	42.33	72	27	45	5	½	½	1½	10½	1½	2½	8	11½	18½	5½	2	3	3.74
Kingston,	50.59	48.62	72	34	38	2½	3½	1	3	3½	7½	4½	4½	9½	20½	7	2	1½	5.98
Lansingburgh,	52.19	44.27	67	23	44	1	1½	....	½	7½	4	1	14½	15	15	½	....	....	1.92
Lewiston,	47.26	40.58	67	24	43	....	1½	....	2	1½	14½	6½	4	11	19	5½	1	....	2.47
Lowville,	44.64	38.60	76	10	66	5½	1	1½	1½	8	2½	5½	4½	13½	16½	2½	2½	1½	2.61
Middlebury,	46.44	39.66	78	17	61	2½	4	½	....	2½	14	3½	3	14	16	2½	3	2½	3.75
Monroe,	47.67	41.21	80	20	60	3½	½	4½	...	6	4	6	5½	16	14	5½	4½	1	3.18
Montgomery,	47.63	43.25	74	25	49	3	5	1	1	3	4½	3½	9	14	16	5	½	2	3.35

APRIL, (*Continued.*)

ACADEMIES.	THERMOMETER.					WINDS, (NO. OF DAYS.)								WEATHER, (NO. OF DAYS.)					Rain gage.
	Mean temperature.		Highest degree.	Lowest degree.	Range.	North.	N. East.	East.	S. East.	South.	S. West.	West.	N. West.	Clear.	Cloudy.	Rain.	Snow.	Rain&Snow.	
	1st half.	2d half.																	
Mount-Pleasant,	46.54	45.27	69	28	41	....	3	....	6	6	3	....	12	14½	15½	7½	....	....	4.94
Newburgh,	47.18	44.92	75	24	51	1	9½	....	2	8	2½	4	3	15½	14½	4	1	....	3.07
North Salem,	44·86	42.55	69	26	43	½	5½	1	5½	3½	3½	5½	5	18	12	6½	½	½	6.25
Oneida Conference Seminary,	44.83	36.31	75	18	57	....	2½	1½	3	4½	4½	8	6	15	15	2½	4½	....	4.69
Oneida Institute,	43.73	39.94	71	11	60	1	....	12½	...	2	1	11	2½	19	11	4	4	....	3.09
Onondaga,	48.43	42.84	76	20	56	½	3½	2	4	3½	2½	7	7	12	18	6	3	1½	4.28
Oxford,	45.68	39.91	78	9	69	½	4½	1	½	7	2½	10½	3½	11½	18½	5½	4	3	5.27
Oysterbay,	47.92	....	74	29	45	....	8	½	6	1½	5	½	8½	17½	12½	7½	1	....	5.33
Palmyra,	45.90	39.78	77	19	58	2½	5½	½	5½	1½	3½	5	6	15½	14½	3½	2	1	4.09
Pompey,	44.52	36.99	74	21	53	½	1½	....	4½	6	5	4½	8	15	15	1	6½	2	2.06
Redhook,	47.07	46.35	81	30	51	4½	2	....	4	8	5	1	5½	10½	19½	4½	1½	....	3.38
Rochester,	52.75	43.55	78	28	50	1½	3.	3½	1½	2	4½	8	6	18	12	3	2½	....	4.46
St. Lawrence,	43.57	38.20	73	15	58	2	8½	....	½	2	7½	4	5½	12	18	5	5	½	2.50
Springville,	45.02	39.32	80	20	60	1	5½	....	....	½	6	11½	5½	10½	19½	3½	4½	1½	3.35
Union,	51.86	40.96	77	29	48	2½	2½	½	2½	4	7½	6½	4	12½	17½	4	1	....	.84
Union-Hall,	45.77	43.69	70	26	44	½	4½	1	4	2½	3½	3½	10½	15½	14½	7½	½	½	3.93
Utica,	44.63	40.15	70	15	55	....	....	7½	3½	3	2	14	. ..	17½	12½	....	....	....	3.67

MAY, 1835.

ACADEMIES.	THERMOMETER.					WINDS, (NO. OF DAYS.)								WEATHER, (NO. OF DAYS.)					Rain gage.
	Mean temperature.		Highest degree.	Lowest degree.	Range.	North.	N. East.	East.	S. East.	South.	S. West.	West.	N. West.	Clear.	Cloudy.	Rain.	Snow.	Rain&Snow.	
	1st half.	2d half.																	
Albany,	52.14	64.81	86	34	52	4	1	....	3	11	3	5½	3½	20½	10½	9	...	....	2.71
Auburn,	51.25	63.18	79	34	45	4	2½	1	2½	5	1½	5	9½	21	10	2	....	....	1.13
Bridgewater,	47.24	58.64	89	32	57	½	....	2½	½	5	4	16½	2	....	....	3	....	....	2.49
Cambridge Washington,	49.49	61.85	87	35	52	10½	....	4	½	3½	6½	1	5	22½	8½	5	....	....	2.65
Canajoharie,	49.86	61.53	88	28	60	½	....	6½	5	....	2	5	12	20½	10½	8	....	....	
Canandaigua,	52.57	59.26	83	40	43	....	....	....	....	15	5	7½	3½	21	10	4	....	1	4.30
Cherry-Valley,	48.78	49.01	80	29	51	2	4½	½	½	3½	6½	10½	3	20½	10½	4½	....	....	1.61
Clinton,	46.25	58.04	85	36	49	2	4½	7	1½	2½	8½	2½	2½	21½	9½	1½	....	....	1.79
Cortland,	48.29	54.24	83	16	67	½	½	....	½	5½	5½	6½	12	21½	9½	4½	....	....	
Dutchess,	54.26	60.37	91	39	52	4½	1½	1	10½	3½	3	....	7	22	9	4	...	....	1.66
Erasmus-Hall,	52.13	61.77	85	41	44	1	6½	1	2	2½	9½	....	8½	21½	9½	4½	....	....	1.76
Fairfield,	53.47	57.64	81	28	53	....	....	11	1½	½	1½	9½	7	17½	13½	5½	....	....	1.10
Farmers' Hall,	49.90	63.70	89	38	51	½	2½	½	1	3½	17½	4	1½	23	8	3½	....	....	1.60
Fredonia,	52.53	62.76	81	34	47	2½	4	1½	. ..	3	19	½	½	22½	8½	6	....	....	1.49
Gouverneur,	49.14	60.89	84	22	62	....	7	....	1½	....	14	2	6½	25½	5½	3½	....	....	3.95
Granville,	50.82	60.31	82	32	50	16	½	....	1	....	10½	1½	1½	21½	9½	6	....	....	2.84
Hamilton,	47.46	60.18	84	24	60	....	....	....	....	6½	8½	1	15	25	6	3½	....	....	1.98
Hartwick,	50.78	63.75	86	30	56	....	....	1	....	11½	2½	4½	11½	20½	10½	5	....	....	1.91
Hudson,	51.44	63.46	80	34	46	2	....	½	1	8½	....	11	8	14	17	6	....	....	2.29
Ithaca,	45.75	60.37	89	32	57	20	....	½	2½	6	....	1	1	20	11	11	....	½	2.61
Johnstown,	48.92	61.54	83	33	50	....	1	8	1	1½	....	17½	2	20½	10½	5½	....	....	1.95
Kinderhook,	50.77	63.01	87	30	57	5½	....	1	½	11	2	2	9	19	12	7	....	....	1.73
Kingston,	54.81	62.66	90	37	53	6	9	1	1	....	8½	1	4½	19½	11½	6½	....	....	1.70
Lansingburgh,	51.81	63.23	86	33	53	1	1	....	1	1	4	1½	21½	22	9	2	....	....	1.86
Lewiston,	56.17	60.39	80	37	43	3	7	....	1	1	14	1½	3½	20	11	4½	....	....	2.86
Lowville,	48.63	60.10	85	25	60	5½	4	1	2	4	1	5½	8	19½	11½	2½	½	½	1.64
Middlebury,	50.11	61.97	85	27	58	4	3½	½	....	....	15	4½	3½	22½	8½	2	....	....	1.74
Monroe,	53.28	65.09	86	31	55	6½	1½	½	1½	2	10	4	5	23	8	1	....	....	.67
Montgomery,	35.71	65.31	94	39	55	1½	9½	½	....	....	2	8½	9	21	10	3½	....	....	1.35

MAY, (*Continued.*)

ACADEMIES.	THERMOMETER.					WINDS, (NO. OF DAYS.)								WEATHER, (NO. OF DAYS.)					Rain gage.
	Mean temperature.		Highest degree.	Lowest degree.	Range.	North.	N. East.	East.	S. East.	South.	S. West.	West.	N. West.	Clear.	Cloudy.	Rain.	Snow.	Rain&Snow.	
	1st half.	2d half.																	
Mount-Pleasant,	52.52	63.64	88	40	48	½	2½	½	4½	9	6	1	7	22½	8½	4	....	....	1.77
Newburgh,	54.35	64.83	92	40	52	1	10½	....	½	3	5	1½	4½	18½	12½	4½	....	½	1.83
North-Salem,	51.13	61.67	91	35	56	....	6½	2	2½	4	5	6½	4½	25	6	5	....	....	1.46
Oneida Conference Seminary,	47.75	60.81	80	32	48	....	1	½	1½	1½	4	3	19½	25½	5½	2½	....	....	2.77
Oneida Institute,	49.27	61.21	83	31	52	....	....	9½	½	½	....	18	2½	26½	4½	2	....	...	.99
Onondaga,	51.44	64.37	84	36	48	....	4½	½	3	3	½	8	11½	20	11	4	....	....	1.07
Oxford,	49.61	60.89	84	25	59	5½	2½	½	½	2½	3	8	8½	18½	12½	6½	....	....	2.14
Palmyra,	50.53	61.87	87	30	57	2½	6	....	5½	½	3½	4	9	19½	11½	5½	....	....	.98
Pompey,	46.33	58.37	81	21	59	1	½	....	2½	4	4½	11½	7	21½	9½	3	....	....	2.47
Redhook,	49.29	65.10	92	33	59	7½	5	....	7	6	1½	1½	2½	18	13	5	...	....	3.41
Rochester,	52.50	60.10	82	40	42	1½	4	5½	½	1½	4	9	5	19	12	4	....	....	.79
St. Lawrence,	49.75	59.20	83	28	55	4	3	....	1	1½	8½	2½	10½	25½	5½	4½	....	....	2.58
Springville,	48.25	62.25	80	33	47	½	6	½	½	....	5	6½	12	15	16	4	....	....	3.20
Union,	59.56	63.20	80	38	42	....	4½	3	2	7	3½	9	2	19½	11½	3½	....	....	1.34
Union-Hall,	50.29	59.41	84	36	48	2	6	2½	4	2	5	4½	5	19½	11½	7½	....	....	.76
Utica,	49.65	58.62	81	20	61	....	....	4½	6½	½	4	15½	....	26½	4½	....	....	....	2.13

JUNE, 1835.

ACADEMIES.	THERMOMETER.					WINDS, (NO. OF DAYS.)								WEATHER, (NO. OF DAYS.)					Rain gage.
	Mean temperature.		Highest degree.	Lowest degree.	Range.	North.	N. East.	East.	S. East.	South.	S. West.	West.	N. West.	Clear.	Cloudy.	Rain.	Snow.	Rain&Snow.	
	1st half.	2d half.																	
Albany,	70.63	63.94	89	50	39	1½	...	....	3	14½	1	3	7	19½	10½	11	....	....	6.48
Auburn,	68.82	62.68	86	47	39	4	2	....	5	5	5½	3½	5	16½	13½	6½	....	....	6.39
Bridgewater,	65.91	58.19	93	38	55	½	....	1	1½	9	4	13	1	....	....	5	....	....	3.69
Cambridge Washington,	67.98	62.34	86	48	38	9	½	1	....	3½	7	4	5	21	9	4½	....	....	6.25
Canajoharie,	70.99	63.24	92	46	46	....	....	2½	8	....	2½	2½	14½	18	12	7½	....	....	
Canandaigua,	64.55	68.48	88	51	37	1	....	....	1	13	2½	10½	2	20	10	7	....	....	3.80
Cherry-Valley,	68.02	59.13	88	42	46	½	3	½	1	7	5	10	3	18½	11½	5½	....	....	6.92
Clinton,	62.06	61.75	85	37	48	....	1½	4½	2	3	9	4½	5½	22½	7½	2	....	....	1.60
Cortland,	65.97	60.19	87	40	47	....	....	....	1	6½	9	3	10½	16½	13½	4	....	....	
Dutchess,	79.46	65.24	96	42	54	4	1	....	14	7	1	....	3	26	4	½	....	....	2.91
Erasmus Hall,	67.00	64.12	84	46	38	....	2½	½	3	½	15	2	6½	20	10	4½	....	....	3.25
Fairfield,	68.93	60.24	84	41	43	....	....	7½	½	½	1½	10½	9½	15	15	6½	....	....	6.38
Farmers' Hall,	67.62	62.82	89	43	46	1	....	....	2	3	12	8½	3	21½	8½	4	....	....	3.32
Fredonia,	68.04	62.15	87	49	38	4½	2	2	1	3½	14½	2	½	18	12	12	....	....	7.30
Gouverneur,	67.49	59.28	90	38	52	½	6½	....	....	4	16	....	3	21	9	5	....	....	2.69
Granville,	68.68	61.06	92	46	46	10	½	....	1	....	14	3½	1	17	13	3	....	...	4.78
Hamilton,	68.83	64.47	89	38	51	....	....	...	1	4½	12½	....	12	20	10	....	....	....	8.04
Hartwick,	69.83	60.77	88	42	46	....	....	....	....	14	3	2	11	15½	14½	4½	....	....	4.58
Hudson,	68.94	63.22	81	47	34	7½	....	½	½	12½	1	4½	3½	11	19	8	....	....	5.79
Ithaca,	68.26	63.55	95	44	51	12	....	1	½	15½	½	½	....	15	15	11	....	....	4.30
Johnstown,	67.93	61.28	86	45	41	....	....	4	3½	½	1½	20½	....	14½	15½	7	....	....	8.04
Kinderhook,	67.87	63.88	88	41	47	6	½	1½	1½	14	1½	½	4½	14½	15½	9	....	....	9.70
Kingston,	69.09	65.76	87	44	43	5	1	1½	2	6	7	4	3½	17	13	5½	....	....	4.21
Lansingburgh,	68.46	66.55	84	52	32	½	....	....	½	7	5	3½	13½	17	13	7½	....	....	4.83
Lewiston,	68.67	63.84	88	47	41	1½	3	½	2	....	17½	2½	3	17	13	6	....	....	2.78
Lowville,	63.33	59.68	93	40	53	4	3	1	2	3½	3	10	3½	13½	16½	2	....	....	6.75
Middlebury,	67.32	61.71	92	40	52	4½	2½	....	....	....	12½	1½	2	20½	9½	5½	....	....	5.73
Monroe,	68.48	61.17	96	42	54	3	....	2	1	6	7½	6½	4	19½	10½	5	....	....	4.25
Montgomery,	70.33	59.00	97	44	53	....	3½	....	7½	1½	4	7½	6	15½	14½	5½	....	....	1.25

JUNE, (*Continued.*)

ACADEMIES.	THERMOMETER.					WINDS, (NO. OF DAYS.)								WEATHER, (NO. OF DAYS.)					Rain gage.
	Mean temperature.		Highest degree.	Lowest degree.	Range.	North.	N. East.	East.	S. East.	South.	S. West.	West.	N. West.	Clear.	Cloudy.	Rain.	Snow.	Rain&Snow.	
	1st half.	2d half.																	
Mount-Pleasant,	69.46	66.01	90	48	42	2	1½	2	4	5½	4½	1½	9	22½	7½	4½	....	....	1.48
Newburgh,	69.61	64.36	89	48	41	....	5	½	....	11	8	2½	3	16½	13½	5½	....	....	3.59
North-Salem,	67.01	60.65	89	42	47	½	....	3½	4	2½	4½	10½	4½	25½	4½	3½	....	....	1.96
Oneida Conference Seminary,	66.33	60.15	90	45	45	....	....	....	½	5	5½	5½	13½	18	12	3	....	....	5.97
Oneida Institute,	68.45	60.29	90	41	49	....	....	4	½	2	1½	19½	2½	20	10	8	....	....	4.36
Onondaga,	69.19	63.62	89	43	41	1	....	1½	2	5	4	4	12½	17½	12½	6½	....	....	6.58
Oxford,	67.81	59.60	92	40	52	2½	1½	....	....	7	4½	9½	5	13½	16½	9½	....	....	5.72
Oysterbay,	68.93	64.21	91	44	47	½	4½	1	1	8	7	6	2	17½	12½	5	....	....	1.89
Palmyra,	67.14	61.78	93	44	49	1½	3½	1½	5½	½	7½	2	3	18½	11½	1½	....	....	5.61
Pompey,	64.26	58.74	85	42	43	....	½	½	3½	9½	8½	11	3½	17	13	4	....	....	5.96
Redhook,	68.80	64.74	95	42	53	5	½	1½	4½	11½	2	2	3	18½	11½	6½	....	....	2.38
Rochester,	70.52	65.85	85	52	33	4	2½	1½	1	½	5½	10½	4½	13	17	8½	....	....	5.49
St. Lawrence,	67.82	60.95	88	45	43	2	3½	½	....	4½	15	2	2½	21½	8½	6	....	....	2.48
Springville,	66.65	61.31	86	40	46	....	7	1	2	1	6	9	4	11½	18½	5½	....	....	3.75
Union,	69.83	60.40	92	50	42	....	5½	½	2½	5	8½	7½	½	16½	13½	3½	....	....	.89
Union-Hall,	62.89	61.38	82	41	41	2	1½	1½	2	8	5	4	6	22	8	5½	....	....	3.39
Utica,	63.38	57.76	85	41	44	....	....	....	6	1½	4½	18	....	24	6	....	....	....	6.88

JULY, 1835.

ACADEMIES.	THERMOMETER.					WINDS, (NO. OF DAYS.)								WEATHER, (NO. OF DAYS.)					
	Mean temperature.		Highest degree.	Lowest degree.	Range.	North.	N. East.	East.	S. East.	South.	S. West.	West.	N. West.	Clear.	Cloudy.	Rain.	Snow.	Rain&Snow.	Rain gage.
	1st half.	2d half.																	
Albany,	70.66	71.49	88	54	34	½	1	....	3	15½	4½	4	2½	18½	12½	12	....	....	5.39
Auburn,	67.13	70.60	84	49	35	2	½	....	3½	5	5½	9	5½	22	9	3½	....	....	3.12
Bridgewater,	64.67	67.20	90	40	50	....	....	½	1	7½	6½	15	½	....	....	6	....	....	4.70
Cambridge Washington,	68.25	68.59	87	46	41	12	....	....	½	2	4½	8½	3½	17	14	7½	....	....	4.48
Canajoharie,	68.84	71.72	94	48	46	....	....	2½	4	....	1½	16	7	18	13	10½	....	....	2.85
Canandaigua,	71.13	69.27	90	50	40	....	....	1	½	12	4	10½	3	21	10	8	....	....	4.05
Cherry-Valley,	65.82	75.07	88	46	42	1½	1	1	....	8	7	11	1½	17	14	5½	....	....	3.71
Clinton,	66.15	63.65	86	50	36	½	....	2	3	6½	13½	3	2½	25	6	2½	....	....	1.39
Cortland,	65.46	66.80	88	40	48	....	....	....	....	5½	8½	8	9	21	10	4½	....	....	
Dutchess,	71.86	74.49	94	47	47	3½	2½	½	12	7	2½	½	2½	25	6	2	....	....	2.89
Erasmus Hall,	71.75	71.07	87	53	34	....	1	....	3½	½	17½	1	7½	22½	8½	5½	....	....	5.13
Fairfield,	61.64	64.05	84	45	39	½	....	8½	1½	½	3	9	8	14½	16½	5½	....	½	4.65
Farmers' Hall,	69.39	69.54	88	48	40	....	1	....	1	5½	17	5½	1	23	8	4	....	....	2.59
Fredonia,	66.36	71.31	85	50	35	2½	½	1½	....	1	17½	6½	1½	20	11	9	....	....	3.52
Gouverneur,	65.27	69.59	85	37	48	....	2	....	½	1	17½	6	4	23	8	5	....	....	4.85
Granville,	68.52	70.82	92	50	42	5½	1	....	....	1½	21½	1	½	18	13	4½	....	....	3.18
Hamilton,	65.76	72.66	85	46	39	....	....	....	....	1	15½	....	14½	17½	13½	....	....	....	3.87
Hartwick,	67.02	67.94	88	43	45	....	....	....	....	19	2	5	5	15½	15½	6	....	....	4.33
Hudson,	68.34	69.78	84	49	35	6½	1½	½	1½	9½	6½	2½	2½	13½	17½	7½	....	....	4.09
Ithaca,	68.38	70.14	96	44	52	11	....	....	1	18	....	....	1	16½	14½	13	....	....	3.76
Johnstown,	67.45	67.75	87	48	39	....	½	4	1	....	2½	20	3	17	14	8	....	½	4.71
Kinderhook,	69.45	69.54	92	45	47	7	....	....	....	16	1½	1	5½	15½	15½	10	....	....	4.03
Kingston,	71.22	71.92	91	50	41	½	5½	2½	2½	8	5½	4½	2	18	13	6½	....	....	4.65
Lansingburgh,	70.75	70.79	90	52	38	....	½	....	1	7½	10½	6	5½	16	15	7	....	....	2.10
Lewiston,	69.27	72.50	89	56	33	1½	1	1	....	½	22½	1½	3	21	10	3	....	....	.80
Lowville,	65.87	68.56	88	46	42	4	....	2	2½	3½	3½	10½	5	17½	13½	3	....	....	4.51
Middlebury,	67.08	70.07	93	50	43	2	1½	....	....	....	20½	4½	2½	20½	10½	5	....	....	2.60
Monroe,	66.08	68.32	88	48	40	2	1	....	....	9½	8½	9	1	18½	12½	3	....	....	2.13
Montgomery,	71.80	72.55	96	45	51	....	1	....	3½	1	....	16	9½	22½	8½	4	....	....	3.65

JULY, (*Continued.*)

ACADEMIES.	THERMOMETER.					WINDS, (NO. OF DAYS.)								WEATHER, (NO. OF DAYS.)					Rain gage.
	Mean temperature.		Highest degree.	Lowest degree.	Range.	North.	N. East.	East.	S. East.	South.	S. West.	West.	N. West.	Clear.	Cloudy.	Rain.	Snow.	Rain&Snow.	
	1st half.	2d half.																	
Mount-Pleasant,	66.86	72.64	90	52	38	1	1	....	6	7	7½	....	8½	22½	8½	5½	...	....	4.05
Newburgh,	71.07	72.71	92	49	43	....	9	½	1½	5½	12	1½	1	19	12	5	....	....	2.36
Morth-Salem,	70.67	72.09	92	47	45	1½	....	2	5	2½	11	7½	1½	22½	8½	6½	....	....	5.52
Oneida Conference Seminary,	66.21	67.28	86	49	37	....	....	....	....	4½	2	11½	13	21½	9½	2½	....	....	3.08
Oneida Institute	67.63	71.27	89	43	46	....	....	4½	½	3½	2	14½	6	22½	8½	9	....	....	1.98
Onondaga,	68.11	71.37	84	51	33	1½	1	....	2½	4½	3	8	10½	19½	11½	5	....	....	2.71
Oxford,	66.83	68.84	90	42	48	5	½	....	....	4½	10	7	4	14	17	8½	....	...	3.46
Oysterbay, ...	72.97	72.83	92	50	42	1	3	½	2½	7½	12	½	4	16½	14½	7	....	...	4.36
Palmyra, ...	66.60	69.32	90	45	45	2	½	½	5½	2	10	5½	5	21	10	1½	....	....	4.19
Pompey, ...	64.02	68.52	83	49	34	....	....	....	1½	2½	12½	13½	1	19	12	4	....	....	2.73
Redhook,	67.61	72.62	98	33	65	4	3½	2	5	13½	2	....	1	19	12	11	....	....	4.75
Rochester,	68.14	71.97	87	53	34	2	3	....	½	½	9½	8½	7	9½	21½	10½	....	....	1.83
St. Lawrence,	66.66	70.35	86	47	39	1½	2	....	....	3	23½	1	....	22½	8½	8	....	....	4.30
Springville,	66.54	73.51	88	49	39	....	1	....	1	½	8	19	1½	13½	17½	6	....	....	3.45
Union,	58.99	77.15	92	48	44	½	2½	....	....	8	7½	12½	....	25	6	2½	....	....	1.96
Union-Hall,	67.97	67.40	86	47	39	2½	½	½	2½	6½	9½	1	8	22	9	7	....	....	4.19
Utica,	63.86	66.61	82	47	35	....	....	....	6½	½	8½	15½	....	25½	5½	....	....	....	4.89

AUGUST, 1835.

ACADEMIES.	THERMOMETER.					WINDS, (NO. OF DAYS.)								WEATHER, (NO. OF DAYS.)					Rain gage.
	Mean temperature.		Highest degree.	Lowest degree.	Range.	North.	N. East.	East.	S. East.	South.	S. West.	West.	N. West.	Clear.	Cloudy.	Rain.	Snow.	Rain&Snow.	
	1st half.	2d half.																	
Albany,	68.64	67.16	87	49	38	2½	½	...	1	15½	2	4	5½	21½	9½	11	....	....	5.34
Auburn,	66.12	63.62	84	44	40	1½	3	....	2	3½	3	3	10	24	7	4	...	....	4.30
Bridgewater,	62.33	61.43	88	33	55	1	....	....	1	9½	7½	11	1	....	....	5½	....	....	4.38
Cambridge Washington,	64.24	63.43	92	36	56	4	½	....	1½	6	3½	9½	6	19½	11½	7½	....	....	5.30
Canajoharie,	69.04	65.24	96	38	58	....	....	1½	7½	....	....	8½	13½	18½	12½	8	....	....	
Canandaigua,	67.33	69.44	86	44	42	....	....	½	....	9	5	14½	2	18	13	9	....	....	4.42
Cherry-Valley,	65.17	63.43	86	40	46	1	2½	½	1½	6½	9	7½	2½	20	11	7	....	....	5.17
Clinton,	66.18	67.52	85	42	43	3	1½	1½	3	6½	8	2	5½	24	7	2½	....	....	2.93
Cortland,	62.86	60.82	89	36	53	....	....	....	½	6	7	7½	10	20	11	4½	....	....	
Dutchess,	70.21	69.67	91	42	49	3½	2	½	12	5	4	1½	2½	26½	4½	1½	....	....	1.47
Erasmus Hall,	68.33	68.70	84	52	32	1	3½	½	1	1½	13½	....	10	22½	8½	5½	....	....	2.84
Fairfield,	66.11	61.52	86	42	44	....	....	5	5½	½	3	7½	9½	8	23	6	....	....	6.79
Farmers' Hall,	66.68	64.20	88	45	43	....	½	2	2	3½	11½	10	1½	22	9	3½	....	....	1.54
Fredonia,	66.19	63.94	86	50	36	1½	1	....	1	2	7	8½	10	21	10	13	....	....	4.20
Gouverneur,	65.14	64.41	92	47	45	½	2½	....	....	3	10½	3	11½	21½	9½	5	....	....	4.85
Granville,	65.84	66.78	93	44	49	9	....	....	½	1½	17½	½	2	18½	12½	5	....	....	5.02
Hamilton,	64.67	63.31	92	33	59	3	2	....	....	6½	7½	7½	4½	18	13	....	...	....	3.06
Hartwick,	63 38	64.40	82	38	44	....	....	....	½	15	3	4	8½	15½	16½	4½	....	....	4.15
Hudson,	66.18	64.78	84	46	38	6	1	2	1	13½	1½	4	2	14½	12	5	....	....	3.56
Ithaca,	65.95	67.37	98	40	58	11½	½	1½	½	14½	1	....	1½	19	12	10	...	....	4.39
Johnstown,	59.81	64.15	77	40	37	....	....	4½	4½	½	....	19½	2	16	15	8½	....	....	5.95
Kinderhook,	64.44	66.76	88	40	48	7½	....	½	3	12½	2½	2	3	18	13	7½	....	....	4.55
Kingston,	69.86	69.13	90	48	42	1	4½	1	2½	5½	9	3½	4	18	13	4½	....	....	2.79
Lansingburgh,	68.33	66.90	90	44	46	....	....	....	2½	6	8½	2½	11½	18½	12½	8	....	....	4.10
Lewiston,	70.30	71.94	90	50	40	1	3½	1½	....	1	18	3½	2½	16½	14½	7½	....	....	2.50
Lowville,	64.93	63.55	94	33	61	5	1	½	4	4	4	8½	4	22	9	3	....	....	5.12
Middlebury,	65.64	62.97	89	35	54	4	1	....	....	....	20	4	2	23	8	5½	....	....	4.49
Monroe,	66.36	63.55	92	40	52	4½	½	....	1	9	9	3½	3½	20½	10½	7½	....	....	4.78
Montgomery,	71.23	75.36	74	52	22	....	1½	1½	½	1	9	13½	4	19½	11½	6	....	....	1.70

AUGUST, (*Continued.*)

ACADEMIES.	THERMOMETER.					WINDS, (NO. OF DAYS.)								WEATHER, (NO. OF DAYS.)					Rain gage.
	Mean temperature.		Highest degree.	Lowest degree.	Range.	North.	N. East.	East.	S. East.	South.	S. West.	West.	N. West.	Clear.	Cloudy.	Rain.	Snow.	Rain&Snow.	
	1st half.	2d half.																	
Mount-Pleasant,	69.50	68.47	85	50	35	2		....	8¼	2¼	6		11	22	9	6	....	....	3.71
Newburgh,	69.95	69.56	88	44	44	1	5½	....	3	6	11	2½	2	19½	11½	3½	....	....	1.64
North Salem,	66.70	68.66	98	40	58	¼	¼	4	3¼	3	4½	10	5	21	10	4¼	....	....	2.07
Oneida Conference Seminary,	63.14	62.31	87	32	55	....	....	....	3	5	5½	4½	13	19½	11½	3½	....	....	4.24
Oneida Institute,	64.98	62.98	87	40	47	⅛	....	3	⅛	2½	¼	18½	5½	22	9	7	....	....	2.66
Onondaga,	67.23	64.78	87	42	45	2½	1	....	4	2½	4	8½	8½	18½	12½	6½	....	....	5.69
Oxford,	66.16	63.61	90	40	50	1	¼	1	1	5½	3½	14	4½	18	13	6½	....	....	5.38
Oysterbay,	69.96	69.93	88	52	36	...	3	1½	5	8½	7	1	5	17½	13¼	4	....	....	1.96
Palmyra,	63.79	64.21	89	38	51	2	3½	....	2	1	12½	5	5	21½	9¼	1½	....	....	4.08
Pompey,	69.43	60.27	82	41	41	....	1	....	....	4	9	7½	9½	18½	12½	5½	....	....	3.71
Redhook,	67.33	66.95	90	41	49	4½	1	3	1½	18	1	....	2	17½	13½	6	....	....	1.48
Rochester,	69.73	64.72	89	50	39	....	4½	....	1	....	15	2½	8	10	21	8½	....	....	3.57
St. Lawrence,	70.16	62.41	90	44	46	....	1½	....	....	1	20½	2½	5½	19½	11½	4	....	....	4.48
Springville,	65.44	61.06	82	44	38	3	3½	2	1	1	2	7	11½	19½	11½	7½	....	....	3.69
Union,	69.10	64.17	92	44	48	6	...	....	....	9	6½	6½	3	17	14	7½	....	....	6.53
Union-Hall,	65.29	65.30	83	45	38	½	3	3	1½	6½	6½	4	6	20½	10½	7½	....	...	2.65
Utica,	63.49	61.58	86	48	38	....	....	5½	....	3	9½	13	....	23	8	....	...	....	6.50

SEPTEMBER, 1835.

ACADEMIES.	THERMOMETER.					WINDS, (NO. OF DAYS.)								WEATHER, (NO. OF DAYS.)					Rain gage.
	Mean temperature.		Highest degree.	Lowest degree.	Range.	North.	N. East.	East.	S. East.	South.	S. West.	West.	N. West.	Clear.	Cloudy.	Rain.	Snow.	Rain&Snow.	
	1st half.	2d half.																	
Albany,	60.23	52.91	83	32	51	5	½	....	½	17½	....	½	6	19	11	4	...	....	1.28
Auburn,	54.14	53.20	80	35	45	1½	....	....	4½	5½	6½	3	9	21½	8½	1½	....	....	2.02
Bridgewater,	54.93	48.18	86	27	59	½	....	....	2½	7	9½	8	2½	....	....	2½	....	½	1.31
Cambridge Washington,	56.97	50.19	83	27	56	7½	....	1	...	4	6	9½	2	17½	12½	2½	....	....	1.10
Canajoharie,	61.97	55.13	94	26	68	....	....	1	8	....	2	6	13	16	14	5	....	....	
Canandaigua,	56.71	52.15	84	38	46	....	....	....	....	2	12	13	3	18	12	5	....	1	3.70
Cherry-Valley,	60.23	49.78	88	28	60	....	½	1½	2	8½	8	3½	6	14½	15½	1½	....	....	1.76
Clinton,	61.12	54.26	78	37	41	5	4½	5	2½	2½	6½	1½	2½	27	3	1½	....	....	.86
Cortland,	56.46	49.34	86	28	58	....	....	....	2	7	6½	7½	7	18	12	3½	...	....	
Dutchess,	61.54	56.00	91	35	55	½	6½	....	10	4	3	1	5	22	8	½	....	....	.89
Erasmus-Hall,	63.93	56.27	81	40	41	3½	4½	½	1½	1½	8½	1	9	21	9	1½	....	....	1.27
Fairfield,	57.83	62.65	78	39	39	....	1	3½	2	½	2½	8½	12	9½	20½	3½	½	....	3.01
Farmers' Hall,	59.35	51.57	85	36	49	1½	1	½	2	4½	11	8	1½	21½	8½	2½	....	....	1.36
Fredonia,	62.61	53.42	84	40	44	....	....	....	5	1½	12½	1½	9½	16½	13½	10	....	3	5.58
Gouverneur,	55.46	50.49	79	22	57	....	....	....	2½	3½	11½	2	10½	18	12	4	....	....	2.44
Granville,	52.41	51.18	88	32	56	5½	....	1	2½	3	16	2	....	17	13	3½	....	....	1.53
Hamilton,	56.75	50.34	78	27	51	1	....	....	2	6	5½	11½	4	14½	15½	....	....	....	.88
Hartwick,	57.99	50.30	82	28	54	....	....	....	....	12	2½	6½	9	14	16	2	....	½	1.13
Hudson,	59.83	51.32	82	30	52	9½	½	½	1½	10	2½	3	2½	17	13	3	....	....	1.88
Ithaca,	60.48	52.30	90	33	57	13	....	....	½	16	½	....	....	15½	14½	8	....	....	1.58
Johnstown,	59.13	48.28	83	26	57	....	1	3½	3	....	½	17½	4½	12½	17½	3½	....	....	.71
Kinderhook,	59.66	51.50	87	27	60	8	....	....	1½	15	2	½	3	15½	14½	5	....	....	1.03
Kingston,	61.39	54.17	84	32	52	3½	3	....	2½	6	8	1½	5½	18½	11½	3½	....	....	1.28
Lansingburgh,	63.12	61.97	85	36	49	1½	....	½	3	3½	9½	5½	6½	18	12	1½	....	...	.95
Lewiston,	61.98	54.81	82	40	42	2	3	1½	1½	2	13	5½	1½	11½	15½	4	....	....	2.53
Lowville,	57.24	50.36	82	22	60	2½	....	....	....	7	5	10	5½	19½	10½	2	....	....	1.48
Middlebury,	58.42	51.59	85	30	55	1½	....	....	1	...	21	2	4½	20½	9½	4	....	....	2.15
Monroe,	58.87	51.73	86	32	54	1	½	½	2	11	6½	6	2½	19	11	3½	....	....	3.60
Montgomery,	62.17	54.07	90	31	59	2½	3½	....	2	1	2	9½	9½	18	12	4	....	....	1.72

SEPTEMBER, (*Continued.*)

ACADEMIES.	THERMOMETER.					WINDS, (NO. OF DAYS.)								WEATHER, (NO. OF DAYS.)					Rain gage.
	Mean temperature.		Highest degree.	Lowest degree.	Range.	North.	N. East.	East.	S. East.	South.	S. West.	West.	N. West.	Clear.	Cloudy.	Rain.	Snow.	Rain & Snow.	
	1st half.	2d half.																	
Mount-Pleasant,	63.34	56.98	80	38	42	....	5½	½	2	2	16	....	4	16½	13½	½	....	....	.97
Newburgh,	63.85	56.24	87	35	52	1	8	....	4	2½	12	1½	1	16	14	2	....	....	.94
North-Salem,	61.14	51.13	86	28	58	1½	2½	4½	3	3½	3½	7½	4	25	5	2½	....	....	1.44
Oneida Conference Seminary,	56.08	48.75	82	27	55	½	....	....	2	5	8½	4	10	17	13	3	....	....	1.97
Oneida Institute,	57.56	51.07	86	29	57	....	....	5½	1	3	1	15½	4	19½	10½	5	....	....	.84
Onondaga,	59.28	52.99	80	32	48	1	....	....	5½	5	6	8	4½	18½	11½	4	....	½	1.96
Oxford,	57.58	50.75	85	28	57	4½	1	....	....	6	6½	9½	2½	15	15	5	....	½	1.79
Oysterbay,	65.36	57.49	88	41	47	2½	2½	½	5	4½	5	1	9	20½	9½	3	....	....	.91
Palmyra,	57.63	51.16	85	29	56	½	....	....	6	3½	9½	4½	6	19	11	½	....	....	3.27
Pompey,	54.07	47.01	80	30	50	....	....	....	1	3	10½	3½	12	14	16	3	½	....	2.25
Redhook,	58.97	50.97	91	31	60	7½	1	3½	3	11½	1½	1½	½	19½	10½	4	....	....	.92
Rochester,	61.44	52.04	85	32	53	1	1½	....	2	3	13	5½	4	11½	18½	5	....	....	2.63
St. Lawrence,	57.03	51.56	81	24	57	2½	....	....	2	8	11½	1½	4½	17	13	3½	....	....	2.34
Springville,	57.76	.....	..	..	..	½	1	....	1	4	5	4½	14	14	16	7	....	....	4.08
Union,	59.85	51.30	85	32	53	2½	½	....	....	11	5	2½	8½	14½	15½	6	....	....	2.29
Union-Hall,	59.33	53.08	80	36	44	3	3	1	4½	2	5½	3½	7½	20½	9½	3½	....	....	1.50
Utica,	54.53	49.46	82	30	52	..	..	....	8½	....	8	13½	....	24	6	...	....	....	1.39

ACADEMIES.	THERMOMETER.					WINDS, (NO. OF DAYS.)								WEATHER, (NO. OF DAYS.)					Rain gage.
	Mean temperature.		Highest degree.	Lowest degree.	Range.	North.	N. East.	East.	S. East.	South.	S. West.	West.	N. West.	Clear.	Cloudy.	Rain.	Snow.	Rain&Snow.	
	1st half.	2d half.																	
Albany,	48.56	56.35	75	30	45	4	....	....	1½	23	1½	2	2	19½	11½	6	....	....	2.92
Auburn,	50.19	58.89	75	35	40	½	½	....	6	10	7	1	6	15	16	4½	....	....	3.65
Bridgewater	45.83	52.35	75	24	51	....	....	....	2	10½	9	8	1½	....	....	2	....	....	5.15
Cambridge Washington,	46.39	55.23	78	23	55	6½	....	....	....	2½	6½	13½	2	20	11	3½	....	....	2.67
Canajoharie,	47.64	55.55	80	24	56	....	....	4	12½	....	½	2	12	16½	14½	3	....	....	
Canandaigua,	53.08	48.31	78	30	48	2	....	....	....	9½	4½	11	4	18	13	5	1	....	4.00
Cherry-Valley,	48.32	52.55	83	32	51	1½	1½	½	2	11	5½	7½	1½	15	16	4½	....	....	1.78
Clinton,	53.76	57.55	72	31	41	1½	5½	3½	5½	5½	5½	2	2	24	7	1½	....	....	2.34
Cortland,	46.22	56.22	76	28	48	....	....	....	½	13½	6½	4	6½	17½	13½	4	....	....	
Dutchess,	53.42	62.93	78	31	47	2	2	1	19	1½	4	½	1	20½	10½	3	....	....	1.59
Erasmus Hall,	53.07	55.94	71	35	36	7½	3½	3	3	4	11½	½	4	24	7	1	....	....	2.11
Fairfield,	59.29	58.01	72	44	28	....	....	11½	3½	½	....	8½	7	7½	23½	5½	....	....	4.63
Farmers' Hall,	50.95	57.85	76	34	42	1½	....	....	3	7½	16	....	3	21½	9½	1½	....	....	1.41
Fredonia,	51.59	59.10	79	38	41	11	3	....	2½	9½	3	1½	½	16	15	14	....	....	6.06
Gouverneur,	46.62	55.98	75	22	53	....	2½	½	½	10	8½	5	4	9½	21½	5	....	....	4.57
Granville,	47.62	54.40	77	26	51	10½	....	....	1	2	16½	1	....	17½	13½	2	....	...	1.79
Hamilton,	47.00	55.82	74	27	47	1½	1	....	....	3	16	3	6½	14½	16½	7	....	....	3.86
Hartwick,	48.33	57.33	78	29	49	....	....	....	1	14½	6	3½	6	15	16	5	....	....	3.07
Hudson,	47.17	54.54	68	30	38	10½	½	½	1	12½	3	1½	1½	14½	16½	4½	....	....	1.65
Ithaca,	55.68	61.66	86	30	56	6	....	....	1½	23	....	....	½	18	13	8	....	....	3.39
Johnstown,	45.42	54.31	70	22	48	....	2½	5½	4½	1½	5½	11½	....	17½	13½	7	....	....	2.11
Kinderhook,	47.17	55.98	78	26	52	7	....	....	1½	21	....	....	1½	16	15	6½	....	....	1.38
Kingston,	50.34	58.98	74	32	42	1	6½	1	½	1½	14½	2½	3½	17½	13½	3½	....	....	1.41
Lansingburgh,	52.04	58.66	74	30	44	....	....	....	3	7	8	5	8	18	13	4½	....	....	1.96
Lewiston,	50.34	57.28	80	34	46	2	4	½	2	2	15½	2	3	12½	18½	6½	....	....	3.97
Lowville,	46.79	55.95	80	24	56	2	4	....	3½	11½	4½	2½	3	15	16	5	....	....	5.49
Middlebury,	49.45	56.92	80	29	51	2½	....	....	....	....	25½	½	1½	18½	12½	7½	....	....	6.60
Monroe,	49.26	60.18	83	28	55	1	½	½	3	15	5½	4	1½	20½	10½	6	....	....	5.75
Montgomery,	50.51	57.35	83	28	55	2½	6	...	4	3½	5	7	3	15½	15½	3½	....	....	1.75

OCTOBER, (*Continued.*)

ACADEMIES.	THERMOMETER.					WINDS, (NO. OF DAYS.)								WEATHER, (NO. OF DAYS.)					Rain gage.
	Mean temperature.		Highest degree.	Lowest degree.	Range.	North.	N. East.	East.	S. East.	South.	S. West.	West.	N. West.	Clear.	Cloudy.	Rain.	Snow.	Rain&Snow.	
	1st half.	2d half.																	
Mount-Pleasant,	52.58	56.04	74	38	36	3	½	½	7	10	2½	½	7	19	12	2½	....	....	2.15
Newburgh,	53.76	59.49	77	35	42	½	5½	....	4½	2½	17	....	1	19	12	3	....	....	1.65
North-Salem,	50.25	56.96	75	24	51	4	4½	2	5	3	7	1½	4	19	12	3	....	....	3.42
Oneida Conference Seminary,	46.36	56.44	76	27	49	1	....	....	2	8	9½	2½	8	15	16	5½	....	....	2.53
Oneida Institute,	47.64	57.16	73	28	45	2	½	8½	½	2	2½	12½	2½	15½	15½	5	....	....	2.39
Onondaga,	48.92	59.01	77	30	47	2	....	1	4	12	2	7	3	15	16	5½	....	....	3.27
Oxford,	47.81	57.55	77	31	46	2½	½	....	....	11	9	6	2	12	19	7½	....	....	5.12
Oysterbay,	55.91	59.61	78	36	42	....	7½	½	4½	6½	7½	1½	3	19½	11½	2½	....	....	
Palmyra,	47.22	56.35	84	33	51	2	1½	½	12	3	3½	4½	4	21	10	2½	....	....	5.06
Pompey,	45.63	53.67	72	29	43	....	....	....	½	11	10½	6	3	14½	16½	5½	....	....	3.26
Redhook,	49.25	58.71	82	24	58	2	2½	6	5½	15	....	....	....	19½	11½	3	....	....	1.35
Rochester,	47.99	55.03	73	32	41	1½	2	....	3	6	8	9	1½	14	17	7	....	....	4.56
St. Lawrence,	47.55	56.56	75	24	51	1½	2	....	....	7½	16½	1	2½	13½	17½	6	....	....	4.70
Springville,	....	....	..	..	..	1	3½	....	½	1	7	8	10	12	19	12	....	....	6.28
Union,	48.66	55.98	78	30	48	....	1½	....	....	11½	11½	3	3½	14	17	11	....	....	6.58
Union-Hall,	50.32	55.35	72	28	44	1	5½	1½	6	6	4	2	5	18½	12½	4	....	....	1.74
Utica,	47.12	56.75	77	30	47	....	....	6	9½	5½	2½	7½	....	20	11	....	....	....	2.32

NOVEMBER, 1835.

ACADEMIES	THERMOMETER. Mean temperature. 1st half.	2d half.	Highest degree.	Lowest degree.	Range.	WINDS, (NO. OF DAYS.) North.	N. East.	East.	S. East.	South.	S. West.	West.	N. West.	WEATHER, (NO. OF DAYS.) Clear.	Cloudy.	Rain.	Snow.	Rain&Snow.	Rain gage.
Albany,	44.88	32.62	63	8	55	3½	1½	....	1	12½	1	7½	3	14	16	3	1	....	2.26
Auburn,	46.39	34.55	64	15	49	1½	1½	1	3½	7	2½	6½	6½	14½	15½	2½	1	½	2.40
Bridgewater,	39.05	27.96	58	— 4	62	....	½	....	2½	7½	9½	7½	2½	11	19	2	2	....	2.20
Cambridge Washington,	42.88	30.43	65	— 2	67	13	1	....	....	4	4½	2½	5	12	18	3	1	....	2.00
Canajoharie,	42.08	30.19	69	4	65	....	....	5	10	....	2½	2½	10	10½	19½	5½	5½	....	
Canandaigua,	38.90	24.01	30	8	22	....	....	....	....	2½	6½	17½	3½	9	21	2	5	1	3.06
Cherry-Valley,	43.74	29.72	67	1	66	½	3	1	....	8	6	6½	5	8	22	3	3½	....	2.44
Clinton,	47.65	38.45	66	20	40	3½	4½	3	½	4	3½	4½	6½	14	16	3	1	....	2.79
Cortland,	42.49	28·70	66	7	59	....	....	....	2	6	9	8½	4½	13½	16½	3½	4½	....	
Dutchess,	48.87	35.02	70	13	57	3	2½	½	15	2½	3½	1½	1½	12½	17½	7	2	....	2.19
Erasmus Hall,	49.43	39.74	69	20	49	1	8	....	2	....	9	....	10	16½	13½	2	1	....	3.16
Fairfield,	42.27	22.88	61	6	55	1	....	7½	1	....	....	9½	11	4	26	3	3½	....	1.42
Farmers' Hall,	45.85	33.78	78	14	64	1	4	1	½	4½	12	6½	½	13½	16½	2½	1	1	1.69
Fredonia,	43.86	35.60	69	12	57	15½	....	....	....	9½	2½	½	2	12	18	6	7	4	1.84
Gouverneur,	38.76	25.38	62	—17	79	2½	2	....	½	13½	2	5½	4	9½	20½	3	3	½	2.82
Granville,	41.88	29.07	68	0	68	12	....	....	1	2	11½	1	2½	8	22	1½	1½	½	1.96
Hamilton,	40.02	31.13	66	5	61	3	....	....	1½	7	7	4	7½	10	20	5	6	....	
Hartwick,	44.64	32.17	74	4	70	....	1	1	3	4	3½	8½	9	10	20	1	1	½	1.97
Hudson,	42.67	29.70	68	30	38	10	1	½	1½	12	2	2	1	14½	15½	4½	....	....	1.65
Ithaca,	45.01	34.01	73	8	65	7	....	½	1	17	½	1½	2½	9	21	7	3	....	.56
Johnstown,	41.06	27.89	60	4	56	....	1½	5	½	....	1½	21	½	17½	12½	4½	2½	....	3.46
Kinderhook,	43.97	31.45	68	4	64	10½	½	½	....	14½	....	½	3½	9½	20½	5	1	5	1.91
Kingston,	48.78	36.10	63	10	53	1½	10	....	....	2½	12	½	3½	11½	18½	3	2	½	2.30
Lansingburgh,	47.50	34.38	63	10	53	....	....	....	....	16	1	9	4	12½	17½	3½	2	....	2.11
Lewiston,	46.35	29.87	66	11	55	1½	3½	1	1	4	16½	½	2	14	16	2½	2	....	1.11
Lowville,	40.77	27.47	64	— 2	66	4	½	1½	1½	11	1	8	2½	9	21	2	3½	....	2.25
Middlebury,	47.13	33.93	78	9	69	4	2	1½	....	....	18	1½	3	12½	17½	2	2½	½	1.85
Monroe,	46.07	31.93	69	10	59	1	3	1	2	9½	9	3	1½	17	13	2½	2½	....	2.10
Montgomery,	42.35	31.44	68	10	58	....	6½	....	2½	....	2	9	10	11½	18½	3½	1	....	1.70

NOVEMBER, (*Continued.*)

ACADEMIES.	THERMOMETER.					WINDS, (NO. OF DAYS.)								WEATHER, (NO. OF DAYS.)					Rain gage.
	Mean temperature.		Highest degree.	Lowest degree.	Range.	North.	N. East.	East.	S. East.	South.	S. West.	West.	N. West.	Clear.	Cloudy.	Rain.	Snow.	Rain&Snow.	
	1st half.	2d half.																	
Mount-Pleasant,	50.21	40.54	79	20	50	¼	12½	¼	2½	1½	9	¼	3	9½	20¼	2½	1	....	3.35
Newburgh,	48.40	36.06	70	14	56	1	3	....	1¼	1	10	2½	6	14	16	3½	1½	....	2.41
North-Salem,	45.95	32.34	74	8	66	2	6	1¼	2	¼	8	6	4	15	15	2	½	¼	1.88
Oneida Conference Seminary,	42.66	29.87	62	7	55	1	....	....	2½	2½	9½	3	11	10	20	3	1½	....	1.50
Oneida Institute	43.60	29.49	64	8	56	3	2	6	1½	1½	1½	8	6½	11	19	2	1	1	1.93
Onondaga,	46.14	34.29	66	10	56	1½	1½	1	3½	3	2½	9½	2½	10½	19½	2½	3	½	2.31
Oxford,	43.55	31.40	68	7	61	3	½	....	....	7	7	9	3½	7	23	4½	3½	½	2.92
Oysterbay,	50.18	39.77	69	19	50	1½	6½	1½	1½	2	10	3	4	10½	19½	3½	1	....	1.71
Palmyra,	46.31	33.33	67	12	55	½	2	1½	6½	2	7	7½	3	11	19	1	½	....	1.96
Pompey,	41.06	28.86	70	5	65	....	....	....	1	7	7	5	10	10½	19½	2½	2½	....	1.82
Redhook,	45.69	33.69	78	10	68	8	2	2	3½	13	½	½	½	11½	18½	6½	1½	....	1.81
Rochester,	45.35	31.09	62	10	52	½	1	1	3½	6	7	6½	4½	6½	23½	3½	3	....	2.25
St. Lawrence,	41.23	24.43	64	—10	74	....	4½	½	½	3½	14	....	7	11	19	2½	2½	....	2.20
Springville,	44.72	32.17	67	9	58	½	½	....	1	1½	9½	2½	5½	8	22	3	4	½	1.50
Union,	43.18	30.14	65	5	60	4½	3	....	½	9½	2½	6½	3½	10	20	5½	5	....	2.53
Union-Hall,	44.44	37.46	67	19	48	1½	4½	4	2	2	4½	3½	8	10½	19½	5	½	1	2.62
Utica,	43.59	30.27	68	9	59	....	....	4½	9	....	1	15½	....	16½	13½	....	....	....	2.60

ACADEMIES.	THERMOMETER.					WINDS, (NO. OF DAYS.)								WEATHER, (NO. OF DAYS.)					Rain gage.
	Mean temperature.		Highest degree.	Lowest degree.	Range.	North.	N. East.	East.	S. East.	South.	S. West.	West.	N. West.	Clear.	Cloudy.	Rain.	Snow.	Rain&Snow.	
	1st half.	2d half.																	
Albany,	19.69	23.10	40	—13	53	5	½	....	....	11½	1½	4½	8	14½	16½	3	6	....	1.19
Auburn,	23.49	28.20	45	— 5	50	½	1	....	3½	8	4	6½	7½	6	25	1½	4½	½	1.63
Bridgewater,	16.49	21.56	45	—23	68	....	....	1	1	6	6	15	2	....	....	2	9	½	1.66
Cambridge Washington,	15.01	20.52	43	—29	72	4½	1	....	1½	9½	2½	3½	8½	11	20	½	4	....	.92
Canajoharie,	16.17	19.70	44	—18	62	....	....	2½	9	....	½	8	11	10½	20½	2	8	....	
Canandaigua,	23.84	23.96	27	— 9	36	1½	....	....	1½	5½	4½	11½	6½	5	26	....	4	1	2.05
Cherry-Valley,	16.76	20.78	40	—19	59	4	½	....	1	7	6½	10	2	4	27	2½	10½	....	1.26
Clinton,	27.88	19.99	48	— 2	50	4½	2	1½	1	1½	2	5	13½	16½	14½	3½	....	....	2.78
Cortland,	19.40	24.62	42	—10	52	....	....	....	2	6½	6½	4	12	6	25	1	7½	....	
Dutchess,	23.12	24.35	43	—22	65	3	5	...	12½	½	4	1½	4½	15	16	3	3	....	2.78
Erasmus Hall,	29.30	32.16	48	4	44	1½	6	...	....	....	8½	2	13	21½	9½	3	1	....	3.71
Fairfield,	15.63	17.24	44	—26	70	....	....	8	3½	....	....	5½	14	3	28	3	9	....	.81
Farmers' Hall,	23.14	23.81	40	—10	50	1½	2	½	....	4	13	7	3	12½	18½	3	2	....	2.55
Fredonia,	26.14	29.74	45	7	38	13½	½	....	2½	5	2	4	3½	10½	20½	4	7	2	4.09
Gouverneur,	13 38	20.48	41	—40	81	4½	2	1	1½	7½	2½	7	5	8½	22½	....	3	....	.47
Granville,	14.71	20.08	46	—22	68	5½	....	....	....	4½	12	6½	2½	13	18	1	4½	....	1.17
Hamilton,	16.63	25.20	46	—20	66	4	....	....	....	2½	10½	6½	7½	8	23	2	9	...	
Hartwick,	21.26	27.50	46	1	45	....	....	...	....	13	4½	2	11½	8½	22½	1½	11	....	.70
Hudson,	17.16	21.41	40	—16	56	11	....	....	3½	10	2	3	1½	12½	18½	1½	2	....	1.19
Ithaca,	21.83	26.70	50	— 5	55	8½	....	....	1½	16	1	....	4	7½	23½	5	7	1	
Johnstown,	14.95	19.88	48	—18	66	....	4½	5½	½	....	½	19½	½	10½	20½	1½	5½	...	.50
Kinderhook,	17.83	21.25	38	—17	55	7	....	....	½	11½	1	....	11	7	24	2½	5	½	1.24
Kingston,	21.84	23.67	46	—12	58	1½	6½	2½	1½	½	8½	1½	8½	13½	17½	4	2½	½	2.15
Lansingburgh,	21.53	29.66	42	—11	53	2	....	....	....	9½	2	3½	14	15	16	1½	1	....	1.06
Lewiston,	14.47	26.28	40	— 1	41	2	4½	1	3½	4½	13	1	1½	13½	17½	1	1½	....	.30
Lowville,	12.97	19.42	43	—40	83	10½	....	....	2	11½	½	5½	1	10	21	1	5½	....	2.50
Middlebury,	22.82	29.26	52	— 8	60	5	1	....	½	1	12	2½	9	11	20	1	2½	....	.39
Monroe,	26.37	27.32	45	— 8	53	½	1	3	½	11	8	6	1	15½	15½	1½	3½	....	.50
Montgomery,	21.60	25.01	50	— 8	58	½	....	....	2	1	4½	6	17	9½	21½	2½	½	½	2.54

DECEMBER, (*Continued.*)

ACADEMIES.	THERMOMETER.					WINDS, (NO. OF DAYS.)								WEATHER, (NO. OF DAYS.)					Rain gage.
	Mean temperature.		Highest degree.	Lowest degree.	Range.	North.	N. East.	East.	S. East.	South.	S. West.	West.	N. West.	Clear.	Cloudy.	Rain.	Snow.	Rain&Snow.	
	1st half.	2d half.																	
Mount-Pleasant,	29.43	30.29	48	— 4	52	3½	4½	2	....	5	11	1	4	12	19	2	2	....	2.31
Newburgh,	20.50	23.86	42	—15	57	9½	....	....	....	6½	7½	3	4½	13½	17½	3	3	....	1.20
North Salem,	22.91	22.50	49	—17	66	1	4	5	1	1	2½	5	11½	17	14	4½	2	....	2.78
Oneida Conference Seminary,	17.07	22.43	49	—19	68	2½	...	....	....	4	12	10½	2	4	27	2½	7½	....	3.83
Oneida Institute,	15.96	19.77	39	—18	57	5½	....	5	2½	....	....	3½	14½	11½	19½	2	9	....	2.33
Onondaga,	23.19	26.11	46	— 8	54	3	...	....	2	6	1	10	9	3½	27½	1½	8	....	.94
Oxford,	19.37	22.86	44	—14	58	2½	½	½	....	2½	12	9	4	4½	26½	2½	11½	....	.90
Oysterbay,	28.07	.....	47	3	44	½	5½	....	....	....	12	4	9	13	18	3½	1	....	2.64
Palmyra,	23.33	27.68	50	— 4	54	½	1	1½	7	1	9½	6	4½	7	24	½	1½	....	.93
Pompey,	17.10	21.02	43	—18	61	....	....	....	½	10	4½	11½	4½	6	25	2	4	....	.97
Redhook,	21.07	22.99	42	— 8	50	8½	2	1½	5	12½	½	....	1	15½	15½	2	1	....	1.20
Rochester,	22.43	28.39	44	— 4	48	1	½	....	4	4½	6½	10½	4	3	28	1½	3½	...	.46
St. Lawrence,	12,36	17.13	47	—26	73	2	5	....	1	3½	13½	½	5½	12½	18½	1	5	....	.58
Springville,	21.30	25.83	44	— 6	50	1½	1½	....	½	3½	8	6½	9½	5½	25½	1	4½	....	2.50
Union,	14.72	23.27	47	36	11	2	4	2½	3	7½	3½	3½	5	5½	25½	2	13½	....	2.32
Union-Hall,	27.28	28.77	48	3	45	2½	6½	....	1	1	6	4	10	13	18	5	1	1	2.05
Utica,	16.37	19.96	43	—16	59	....	....	13½	3	....	1½	10	3	16	15	....	....	....	1.16

RECAPITULATION AND RESULTS, No. 1.

ACADEMIES.	MEAN TEMPERATURE OF EACH MONTH.												Annual Mean.	Highest deg. during the year.	Lowest deg. during the year.	Annual Range.	Greatest mo. range.	Coldest day in the year.	Warmest day in the year.	First frost in autumn.	First fall of snow.
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.									
Albany,	21.55	21.69	32.67	44.25	58.47	67.28	71.07	67.90	56.57	52.45	38.75	21.39	46.17	89	—23	112	72	Decem. 16	Aug. 13	.....	Nov. 23
Auburn,	23.09	22.37	32.70	44.11	57.21	65.75	68.86	64.87	53.67	54.54	40.47	25.84	46.54	86	— 6	92	56	Jan. 7	June 10	Sept. 15	Nov. 23
Bridgewater,	20.28	18.30	29.73	39.43	52.94	62.05	65.93	61.88	51.55	49.09	23.50	19.02	41.14	93	—31	124	85	Decem. 16	June 11	Aug. 4	Nov. 12
Cambridge Wash	19.49	19.01	30.47	42.01	55.67	65.16	68.42	63.83	53.58	50.81	36.65	17.78	43.57	92	—36	128	89	Decem. 16	Aug. 12	Sept. 15	Nov. 23
Canajoharie,	18.86	18.41	28.82	41.19	55.74	67.11	70.28	67.14	58.55	51.59	36.13	17.93	44.31	96	—36	132	88	Jan. 7	Aug. 13	.....	Nov. 12
Canandaigua,	23.26	18.10	23.85	37.91	55.91	66.51	70.20	68.38	54.43	50.69	31.05	23.90	43.68	90	— 9	99	55	Decem. 16	July 11	Sept. 16	Oct. 24
Cherry-Valley,	21.13	18.76	30.13	42.21	49.90	63.57	70.44	64.30	55.00	50.43	36.73	18.72	43.44	88	—30	118	79	Decem. 16	June 4	.....	Nov. 12
Clinton,	29.45	26.11	33.46	41.54	52.14	61.90	67.40	66.85	57.69	55.66	43.05	23.93	46.60	86	— 8	94	58	Decem. 16	Aug. 12	Nov. 27	Nov. 23
Cortland,	22.44	17.66	30.24	41.20	53.76	63.08	66.13	61.84	52.90	51.22	35.59	22.02	43.17	89	—24	113	69	Jan. 7	Aug. 13	Aug. 4	Nov. 11
Dutchess,	23.09	24.55	35.35	47.92	57.56	72.35	73.17	69.94	59.77	53.17	41.94	23.73	48.95	96	—30	126	80	Jan. 4	July 13	Sept. 15	Nov. 23
Erasmus Hall,	30.93	28.25	36.91	45.56	56.95	65.56	71.41	68.51	60.10	54.50	44.58	30.73	49.49	87	— 6	93	59	Jan. 4	July 13	Oct. 26	Nov. 22
Fairfield,	22.25	15.07	25.18	38.79	55.55	64.58	62.84	63.81	60.24	58.65	32.57	16.43	42.99	86	—26	112	74	Decem. 16	June 9	Sept. 6	Sept. 30
Farmers' Hall,	21.56	22.98	33.22	42.77	56.80	64.22	69.46	65.44	55.46	54.40	39.81	23.47	45.79	89	—30	119	79	Jan. 7	June 13	.....	Nov. 30
Fredonia,	29.75	20.24	32.83	43.62	57.64	65.09	68.33	65.06	58.01	55.34	42.23	27.94	47.21	87	— 5	92	67	Feb. 7	June 10	.....	Nov. 12
Gouverneur,	19.70	13.93	27.92	41.69	55.01	63.39	67.43	64.77	52.97	51.30	32.07	16.93	42.25	92	—40	132	81	Decem. 17	June 10	Sept. 15	Nov. 12
Granville,	19.80	20.94	30.53	41.76	55.56	64.87	69.67	66.37	51.79	51.01	35.47	17.39	43.76	93	—31	124	79	Jan. 4	Aug. 12	Sept. 14	Nov. 12
Hamilton,	21.74	18.80	29.64	41.74	53.82	65.65	69.21	63.99	53.54	51.41	35.57	20.91	43.83	92	—34	126	90	Decem. 16	June 3	Aug. 3	Sept. 30
Hartwick,	23.68	20.31	30.13	41.87	57.26	65.30	67.48	63.89	59.15	52.85	38.40	24.38	45.39	88	0	88	70	Jan. 7	June 4	Aug. 4	Nov. 12
Hudson,	21.25	20.99	32.34	41.10	57.45	66.08	69.06	65.40	55.57	50.85	36.18	19.28	44.62	84	—24	108	74	Decem. 16	July 14	Sept. 15	Nov. 23
Ithaca,	26.88	21.28	32.50	41.38	53.06	65.90	69.26	66.66	56.39	53.67	39.51	24.26	46.31	98	—12	110	66	Jan. 7	Aug. 28	.....	Nov. 23
Johnstown,	18.28	17.34	30.21	41.14	55.23	64.60	67.60	61.98	53.70	49.81	34.47	17.41	42.64	87	—30	117	70	Jan. 7	June 4	Sept. 8	Nov. 12
Kinderhook,	19.70	20.00	31.39	43.33	56.89	65.87	69.49	65.60	55.58	51.57	37.71	19.54	44.72	92	—24	116	72	Jan. 4	June 12	Sept. 15	Nov. 23
Kingston,	23.62	25.31	35.40	49.60	58.73	67.42	71.57	69.49	57.78	54.91	42.44	22.75	48.25	91	—30	121	82	Jan. 4	Aug. 12	Sept. 9	Nov. 23
Lansingburgh,	22.32	23.59	35.80	48.23	57.52	67.50	70.77	67.86	62.04	55.35	40.98	25.29	48.10	90	—28	118	74	Jan. 4	Aug. 13	Sept. 15	Nov. 23
Lewiston,	29.07	23.19	35.04	43.92	58.28	66.25	70.88	71.12	58.39	53.81	38.11	20.37	47.36	90	— 1	91	56	Decem. 16	July 24	Aug. 4	Nov. 21
Lowville,	21.50	16.30	28.29	41.62	54.36	61.50	67.21	64.24	53.80	51.37	34.12	16.19	40.75	94	—40	134	83	Decem. 16	Aug. 12	Sept. 15	Nov. 12
Middlebury,	26.82	19.07	32.37	43.05	56.04	64.51	68.57	64.30	54.50	53.18	40.53	26.04	45.75	93	— 8	101	69	Decem. 16	Aug. 13	Sept. 15	Sept. 30
Monroe,	27.76	20.61	32.60	44.54	59.18	64.82	67.20	65.20	55.30	54.72	39.00	27.84	46.56	96	— 8	104	60	Decem. 16	June 10	.....	Nov. 11
Montgomery,	27.72	23.24	32.66	45.24	59.51	64.66	72.17	73.29	58.12	53.93	36.89	23.36	47.56	97	—33	130	97	Jan. 4	July 13	.....	Nov. 23

RECAPITULATION AND RESULTS, No. 1, (*Continued.*)

ACADEMIES.	MEAN TEMPERATURE OF EACH MONTH.												Annual Mean.	Highest deg. during the year.	Lowest deg. during the year.	Annual Range.	Greatest mo. ra.	Coldest day in the year.		Warmest day in the year.		First frost in autumn.		First fall of snow.	
	January.	February.	March.	April.	May.	June.	July.	August.	September	October.	November.	December.														
Mount-Pleasant,	27.21	25.72	34.76	45.90	58.08	67.73	69.75	68.93	60.16	54.31	45.37	29.86	48.98	90	— 8	98	60	Jan.	4	July	14	Aug.	4	Nov.	22
Newburgh,	23.65	23.23	35.90	46.05	59.59	66.99	71.89	69.75	60.04	56.62	42.33	22.18	48.17	92	—27	119	78	Jan.	4	July	13	.....	....	Nov.	23
North-Salem,	24.63	22.71	32.83	43.70	56.40	63.83	71.38	67.68	56.13	53.60	39.14	22.70	46.22	93	—31	129	83	Jan.	4	July	14	Aug.	4	Nov.	23
Oneida Con. Semina.	21.39	16.74	29.54	40.57	54.83	63.19	66.74	62.72	52.41	51.40	36.27	19.74	42.96	90	—26	116	70	Jan.	7	June	10	Aug.	4	Nov.	23
Oneida Institute,	21.12	17.30	29.57	41.33	55.24	64.87	69.45	63.98	54.77	52.40	36.54	17.58	43.76	90	—33	123	76	Jan.	4	June	11	Aug.	4	Nov.	12
Onondaga,	25.69	22.12	33.72	45.63	57.91	66.40	69.74	66.00	56.14	53.96	40.21	24.61	46.84	89	—18	107	67	Dec.	16	Aug.	13	Oct.	12	Nov.	12
Oxford,	21.84	19.11	31.04	42.79	55.25	63·70	67.83	64.83	54.16	52.68	37.47	21.11	44.32	92	—35	127	86	Jan.	8	Aug.	13	Sept.	15	Sept.	30
Oysterbay,	30.60	27.09	36.70	.....	.....	66.59	72.90	69.94	61.42	57.76	44.97	...	....	92	— 2	94	56	Jan.	7	July	13	Oct.	8	Nov.	22
Palmyra,	25.93	20.37	30.68	42.84	56.20	64.46	67.96	64.00	54.39	51.78	39.82	25.50	45.32	93	— 9	102	58	Dec.	16	June	11	Sept.	16	Nov.	23
Pompey,	22.73	17.54	29.56	40.75	52.35	61.50	66.27	64.85	50.54	49.65	34.96	19.06	42.16	85	—13	103	72	Dec.	16	July	18	Sept.	8	Sept.	30
Redhook,	21.37	23.32	32.40	46.71	57.18	66.77	70.11	67.39	54.97	53.98	44.69	22.03	46.74	98	—28	126	75	Jan.	4	July	24	.....		Nov.	23
Rochester,	31.15	21.16	33.31	48.10	56.30	68.18	70.05	67.22	56.74	51.51	39.72	25.41	47.40	89	— 7	96	64	Feb.	8	July	25	Sept.	24	Nov.	23
St. Lawrence,	20.52	14.19	27.75	40.88	54.47	64.38	68.50	66.28	54.29	52.05	32.83	14.71	42.57	90	—30	120	78	Dec.	16	Aug.	12	Sept.	15	Nov.	11
Schenectady,	20.47	21.75	31.92	42.99	57.98	66.81	71.12	67.22	56.77	53.47	38.87	21.22	45.88	85	—26	111	70	Jan	7	Aug.	13	.....		Nov.	23
Springville,	28.92	21.45	35.95	42.17	55.55	63.98	70.02	63.25	.....	.....	38.44	23.56	.....	88	— 8	96	..	Dec.	16	July	25	Aug.	4	Nov.	11
Union,	24.93	19.52	31.85	46.41	56.43	65.11	67.57	66.13	55.57	52.32	36.66	18.99	45.12	92	—36	128	79	Dec.	16	June	11	.....		Nov.	13
Union-Hall,	28.82	25.92	34.70	44.73	54.85	62.13	67.68	65.29	56.20	52.82	40.95	28.02	46.84	86	— 3	89	60	Jan.	4	Aug.	14	Sept.	16	Nov.	28
Utica,	23.34	20.25	33.58	42.39	54.13	60.57	65.23	62.53	51.99	51.93	26.93	18.26	42.56	86	—26	112	75	Dec.	16	Aug.	13	Aug.	4	Nov.	13

RECAPITULATION AND RESULTS, No. 2.

ACADEMIES.	PREVAILING WINDS IN EACH MONTH.											
	January.	February.	March.	April.	May.	June.	July.	August.	Septem.	October.	Novem.	Decem.
Albany,	W	S	S	S	S	S	S	S	S	S	S	S
Auburn,	S	NW	NW	NW	NW	SW	W	NW	NW	S	S	S
Bridgewater,	W	W	W	W	W	W	W	W	SW	S	SW	W
Cambridge Washington,	N	N	N	SW&W	N	N	N	W	W	W	N	S
Canajoharie,	W	NW	NW	E	NW	NW	W	NW	NW	SE	SE&NW	NW
Canandaigua,	S	S	W	W	S	S	S	W	W	W	W	W
Cherry-Valley,	W	W	W	W	W	W	W	SW	S	S	S	W
Clinton,	NE	NW	NW	NW	SW	SW	SW	SW	SW	SW	NW	NW
Cortland,	S	NW	W	NW	NW	NW	NW	NW	W	S	SW	NW
Dutchess,	SE	SW	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE
Erasmus-Hall,	N	NW	NW	NW	SW	SW	SW	SW	NW	SW	NW	NW
Fairfield,	NW	E	E	E	E	W	W	NW	NW	E	NW	NW
Farmers' Hall,	SW	W	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
Fredonia,	SW	SW	SW	SW	SW	SW	SW	NW	SW	N	N	N
Gouverneur,	SW	SW	SW	NW	SW	SW	SW	NW	SW	S	S	S
Granville,	N	SW	SW	SW	N	SW	SW	SW	SW	SW	N	SW
Hamilton,	NW	NW	SW	SW	NW	SW	SW	SW&W	W	SW	NW	SW
Hartwick,	S	NW	S	NW	S&NW	S	S	S	S	S	NW	S
Hudson,	NW	NW	W	NW	W	S	S	S	S	S	S	N
Ithaca,	S	S	N	S	N	S	S	S	S	S	S	S
Johnstown,	W	W	W	W	W	W	W	W	W	W	W	W
Kinderhook,	N	N	N	S	S	S	S	S	S	S	S	S
Kingston,	NE	NE	NE	SW	NE	SW	S	SW	SW	SW	SW	NW
Lansingburgh,	SW	W	W	NW	NW	NW	SW	NW	SW	SW&NW	S	NW
Lewiston,	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
Lowville,	N	N	N	S	NW	W	W	W	W	S	S	S
Middlebury,	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
Monroe,	S	S	SW	S&W	SW	SW	S	S&SW	S	S	S	S
Montgomery,	N	NW	NW	NW	NE	SE&W	W	W	W&NW	W	NW	NW
Mount-Pleasant,	NW	NW	S	NW	S	NW	NW	NW	SW	S	NE	SW
Newburgh,	NE	NE	NE	NE	NE	S	SW	SW	SW	SW	SW	N
North-Salem,	NW	NW	NE	NE&W	NE&W	W	SW	W	W	SW	SW	NW
Oneida Conference Seminary,	NW	SW	NW	W	NW	NW	NW	NW	NW	SW	NW	SW

RECAPITULATION AND RESULTS, No. 2, (*Continued.*)

ACADEMIES.	PREVAILING WINDS IN EACH MONTH.											
	January.	February.	March.	April.	May.	June.	July.	August.	Septem.	October.	Novem.	Decem.
Oneida Institute,	W	W	W	E		W	W	W	W	W	W	NW
Onondaga,	W	W	W&NW	W&NW	NW	NW	NW	W&NW	W	S	W	W
Oxford,	N	W	W	W	NW	W	SW	W	W	S	W	SW
Oysterbay,	NW	NE	SW	NW	.....	S	SW	S	NW	NE&SW	SW	SW
Palmyra,	NW	NW	SE	NW	NW	NW	SW	SW	SW	SE	W	SW
Pompey,	W	W	W	NW	W	W	W	NW	NW	S	NW	W
Redhook,	N	N	N	S	N	N	S	S	S	S	S	S
Rochester,	SW	W	SW&W	W	W	W	S W	SW	SW	W	SW	W
St. Lawrence,	SW	SW	SW	NE	NW	SW	S W	SW	S W	SW	SW	SW
Schenectady,	NW	NW	NW	NW	NW	W	.....	W	S	.....	S	NW
Springville,	NW	W	W	W	NW	W	W	NW	NW	NW	NW	NW
Union,	S	S	SW	W	W	SW	W	S	S	S	S	S
Union-Hall,	N	NE&NW	NW	NW	NE	S	SW	S&SW	NW	SE&S	SW	NW
Utica,	W	W	W	W	W	W	W	W	W	SE	W	

RECAPITULATION AND RESULTS, No. 2, (*Continued.*)

ACADEMIES.	ANNUAL RESULTS OF WINDS, (NO. OF DAYS.)								Prevailing wind.
	North.	N. East.	East.	S. East.	South.	S. West.	West.	West.	
Albany,	42½	6½	0	18½	153	23	57	63½	South.
Auburn,	20	22	3	46½	70	58½	53½	91½	Northwest.
Bridgewater,	4½	1½	11½	23½	85½	75	138	25½	West.
Cambridge Washington,	101½	11½	8½	4½	42½	63½	74	59	North.
Canajoharie,	1½	½	47½	77½	5½	14½	87½	130½	Northwest.
Canandaigua,	17½	1½	4½	7	100½	61	129	44	West.
Cherry-Valley,	23½	28	8	9½	76½	75	110½	34	West.
Clinton,	22½	43	41	31½	39	66	47	69	Northwest.
Cortland,	4	3	0	19½	84½	77	76½	100½	Northwest.
Delaware,	37	35½	3½	145½	35½	43½	10	54½	Southeast.
Fairmount Hall,	21	55	7½	24	13½	115	17	112	Southwest.
Fairfield,	1½	3	104	25	3½	12½	102	113½	Northwest.
Fairmount Hall,	10½	26	8½	14	50½	159½	74	22	Southwest.
Franklin,	54½	19	6½	19	51	141	41	33	Southwest.
Genesee,	19	40	2	9½	50½	115	50½	78½	Southwest.
Granville,	124	6½	1	9½	16	167	22	19	Southwest.
Hamilton,	16½	5½	1	6	43½	128½	35½	128½	Sw & Nw.
Hartwick,	2	3½	3½	5½	151	33	45½	121	South.
Hudson,	81	19½	8	29½	106	23	46½	51½	South.
Ithaca,	137½	1	3½	17	180	4	4	18	South.
Jamestown,	1	27	62½	24½	4	19½	210½	16	West.
Kinderhook,	95½	3	5½	12½	149½	14	21½	63½	South.
Kingston,	32½	80½	12	16½	43	98	36½	52	Southwest.
Lansingburgh,	12	3	½	15	75	76	63½	120	Northwest.
Lewiston,	20½	42	9½	17	25	190½	33	28½	Southwest.
Lowville,	67½	19½	14½	27	79	27½	85	45	West.
Middlebury,	42½	22½	2½	2	4	220½	31	40	Southwest.
Monroe,	30	16½	14½	14½	102	95	62	30½	South.
Montgomery,	29½	46	3	28	15½	40½	101½	101	West.
Mount-Pleasant,	25	45	7½	49	64½	67½	10	96½	Northwest.
Newburgh,	19	90½	1	18	66	102½	26	33	Southwest.
New-Salem,	19	40	28½	37	31	66½	72	71	West.
Oneida Conference Seminary,	5½	9	2½	16½	48	84½	73	126	Northwest.

RECAPITULATION AND RESULTS, No. 2, (*Continued.*)

ACADEMIES.	ANNUAL RESULTS OF WINDS. (NO. OF DAYS.)								Prevailing wind.
	North.	N. East.	East.	S. East.	South.	S. West.	West.	N. West.	
Oneida Institute	12½	9½	85½	10	91	17	163	53½	West.
Onondaga,	14	16	10	40	64½	38	94	89½	West.
Oxford,	45	18	4	2	65½	76	106½	46	West.
Oysterbay,	....	....	....	....	....	....	....	....	
Palmyra,	22	27	9½	72½	19	31½	59	74½	Southwest.
Pompey,	4	3½	½	19	67½	97	104½	69	West.
Redhook,	94	23	27	40	138½	11	10	21½	South.
Rochester,	18½	28	16½	27½	24½	99½	92½	58	Southwest.
St. Lawrence,	21	50½	2	6½	37	163½	23½	61	Southwest.
Schenectady,	....	....	....	....	....	....	....	....	
Springville,	12	84½	3½	12	18	71½	112½	101½	West.
Union,	28½	37½	10½	14	91½	72½	75	35½	South.
Union-Hall,	31½	53	17½	31½	41½	56½	45	88½	Northwest.
Utica,	0	0	56	63½	15	50	176½	3	West.

RECAPITULATION AND RESULTS, No. 3.

ACADEMIES.	WEATHER, (NO. OF DAYS.)					RAIN GAGE FOR EACH MONTH.												Total fall of rain & snow.	Driest month in the year.	Wettest month in the year.
	Clear.	Cloudy.	Rain.	Snow.	Rain&Snow.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.			
Albany,	213½	151½	75	26	5	4.64	1.79	2.60	4.54	2.71	6.48	5.39	5.34	1.28	2.22	2.26	1.19	40.44	D cember,..	June.
Auburn,	195	170	35	19	5½	1.77	1.47	1.77	4.68	1.13	6.39	3.12	4.30	2.02	3.65	2.40	1.63	34.33	May,	June.
Bridgewater,	.....	.....	34	24½	6	4.19	5.01	4.96	11.31	2.49	8.69	4.70	4.38	1.31	5.15	2.20	1.66	55.96	September, .	April.
Cambridge Washington,	197½	167½	42½	13½	3½	4.25	2.15	2.20	1.95	2.65	6.25	4.48	5.30	1.10	2.67	2.00	.92	35.92	December,..	June.
Canajoharie,	178½	186½	69½	30	2	2.70	....	....	....	....	....	2.85	....	....	....	....	....	.....		
Canandaigua,	169	196	52	39	6	2.64	3.95	3.12	3.76	4.30	3.80	4.05	4.42	3.70	4.00	3.06	2.05	43.35	December,..	August.
Cherry-Valley,	174½	190½	41	34½	1	3.24	1.46	2.10	3.43	1.61	6.92	3.71	5.17	1.76	1.78	2.44	1.26	34.88	ecember,..	June.
Clinton,	252½	112½	28½	3½	½	2.45	1.63	4.22	5.69	1.79	1.68	1.39	2.93	.86	2.34	2.79	2.78	30.55	September,..	April.
Cortland,	186½	178½	38	30	....	....	....	....	....	....	....	....	....	....	....	....	....	.....		
Dutchess,	237	128	36	17½	1	3.55	1.28	2.74	5.03	1.66	2.91	2.89	1.47	.89	1.59	2.19	2.78	28.98	September, .	April.
Erasmus Hall,	253	112	38	7	½	2.65	1.29	4.71	6.22	1.76	3.25	5.13	2.84	1.27	2.11	3.16	3.71	38.11	September, .	April.
Fairfield,	118	247	46½	38	1	1.82	2.25	1.63	1.63	1.10	6.38	4.65	6.79	3.01	4.63	1.42	.81	36.17	December,..	June.
Farmers' Hall,	236	129	31½	7	2	3.30	.95	1.69	3.42	1.60	3.32	2.59	1.54	1.36	1.61	1.69	2.55	25.62	February, ..	April.
Fredonia,	195½	169½	96	38	10	.99	2.59	1.62	1.63	1.49	7.30	3.52	4.20	5.58	6.06	1.84	4.09	40.96	January,....	June.
Gouverneur,	201	164	40	20½	1	5.80	2.22	3.25	8.25	3.95	2.69	4.85	4.85	2.44	4.57	2.82	.47	46.16	December,..	April.
Granville,	183½	181½	35½	13	2½	2.99	1.08	1.20	3.36	2.84	4.78	3.18	5.02	1.53	1.79	1.96	1.17	28.90	February, ..	August.
Hamilton,	184½	180½	.....	23	1½	2.17	2.50	1.90	5.05	1.98	8.04	3.87	3.06	.88	3.86	....	....	....		
Hartwick,	170	195	35	24½	3½	2.53	1.26	1.07	3.78	1.91	4.58	4.33	4.15	1.13	3.07	1.97	.70	30.48	December,..	June.
Hudson,	182	183	48½	10	1	4.60	.65	2.45	4.50	2.29	5.79	4.09	3.56	1.88	1.65	1.65	1.19	34.30	February, ..	June.
Ithaca,	179	186	90	21½	1½	.20	1.62	2.43	3.10	2.01	4.30	3.76	4.39	1.58	3.39	.56	....	.....		
Johnstown,	175	190	55	22	5	3.76	1.98	3.42	4.42	1.95	8.04	4.71	5.95	.71	2.11	3.46	.50	41.01	December,..	June.
Kinderhook,	167½	197½	65	16½	10½	3.73	1.31	2.65	3.74	1.73	9.70	4.03	4.55	1.03	1.38	1.91	1.24	37.00	September, .	June.
Kingston,	194½	170½	51½	13	4½	3.94	1.20	2.33	5.98	1.70	4.21	4.65	2.79	1.28	1.41	2.30	2.15	33.94	February ..	April.
Lansingburgh,	196½	168½	45	7½	....	.25	1.30	.17	1.92	1.86	4.83	2.10	4.10	.95	1.96	2.11	1.00	22.55	March, ...	June.
Lewiston,	175	190	45½	15	....	3.31	2.30	.75	2.47	2.86	2.78	.80	2.50	2.53	3.97	1.11	.30	25.68	December,..	October.
Lowville,	172	193	29	29	2½	3.02	2.40	1.35	2.61	1.64	6.75	4.51	5.12	1.48	5.49	2.25	2.50	39.12	March, ...	June.
Middlebury,	208	157	39½	16	4	1.48	1.58	2.25	3.75	1.74	5.78	2.00	4.49	2.15	6.69	1.85	.39	34.15	December,..	October.
Monroe,	216½	148½	43¼	24½	1	1.28	1.34	1.06	3.18	.67	4.25	2.13	4.78	3.60	5.75	2.10	.50	30.64	December,..	October.
Montgomery,	193	172	43	7	4½	4.25	1.37	1.70	3.35	1.35	1.25	3.65	1.70	1.72	1.75	1.70	2.54	26.33	June, ...	January.

RECAPITULATION AND RESULTS, No. 3, (*Continued.*)

ACADEMIES.	WEATHER, (NO. OF DAYS.)					RAIN GAGE FOR EACH MONTH.													
	Clear.	Cloudy.	Rain.	Snow.	Rain&Snow.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total fall of rain & snow.	Driest month in the year.	Wettest month in the year.
Mount-Pleasant,	226	139	41	7½	2	4.51	2.39	2.96	4.94	1.77	1.48	4.05	3.71	.97	2.15	3.35	2.31	34.50	September, .	April.
Newburgh,	202½	162½	39	11½	2	3.05	1.15	2.15	3.07	1.83	3.59	2.36	1.64	.94	1.65	2.41	1.20	25.04	September, .	June.
North Salem,	254½	110½	46	9	5	6.12	.32	1.77	6.25	1.46	1.96	5.52	2.07	1.44	3.42	1.88	2.78	35.49	February, ..	April.
Oneida Conference Seminary,	132	183	31	22½	½	1.44	1.61	.86	4.60	2.77	5.97	3.03	4.24	1.97	2.53	1.50	3.83	34.35	March, ...	June.
Oneida Institute,	205½	159½	51	21	4	1.77	1.37	1.29	3.09	.99	4.36	1.98	2.66	.84	2.39	1.93	2.33	25.00	September, .	June.
Onondaga,	167½	197½	48	23½	3	.93	1.43	1.31	4.28	1.07	6.53	2.71	5.69	1.96	3.27	2.31	.94	32.43	January, ...	June.
Oxford,	149	216	63	35	7	2.35	1.68	1.93	5.27	2.14	5.72	3.46	5.38	1.79	5.12	2.92	.90	38.66	December, ..	June.
Oysterbay,	.....	.....	.....	.....	....	3.45	.55	3.42	5.33	....	1.89	4.36	1.96	.91	....	1.71	2.64	.....		
Palmyra,	185½	179½	23½	10	1	1.22	.85	1.65	4.00	.98	5.61	4.19	4.08	3.27	5.06	1.96	.93	33.80	February, ..	June.
Pompey,	170½	194½	34	23½	2	2.04	3.05	2.95	2.06	2.47	5.96	2.73	3.71	2.25	3.26	1.82	.97	33.27	December, ..	June.
Redhook,	196½	148½	52	8½	0	4.25	....	1.00	3.35	3.41	2.38	4.75	1.48	.82	1.35	1.81	1.20	.....		
Rochester,	147½	217½	58	27½	0	1.15	.81	.60	4.46	.79	5.49	1.83	3.57	2.63	4.56	2.25	.46	28.60	December, ..	June.
St. Lawrence,	201½	163½	45	26	1	1.43	1.53	.47	2.59	2.58	2.48	4.30	4.48	2.34	4.70	2.20	.58	29.68	March, ...	October.
Schenectady,	.....	.....	.....	.....	....	2.72	.63	3.06	4.15	1.89	2.83	3.37	4.03	1.19	2.89	2.35	6.56	35.67	February, ..	December.
Springville,	138	227	55	27	2	.90	3.40	2.56	3.35	3.20	3.75	3.45	3.69	4.08	6.28	1.50	2.50	38.66	January, ...	October.
Union,	163½	201½	50½	33½	½	1.60	3.13	.70	.84	1.34	.89	1.96	6.53	2.29	6.38	2.53	2.32	30.51	March, ...	August.
Union-Hall,	221½	143½	61½	6½	3½	3.15	.63	2.17	3.93	.76	3.39	4.19	2.65	1.50	1.74	2.62	2.05	28.78	February, ..	July.
Utica,	248	117	.....	.....	....	3.31	1.79	1.93	3.67	2.18	6.88	4.89	6.50	1.38	2.32	2.60	1.16	38.61	December, ..	June.

RECAPITULATION AND RESULTS, No. 4.

ACADEMIES.	COMPARISON OF THE WARMEST AND COLDEST DAY IN EACH MONTH.																					
	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.	
	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.
Albany,	26	4	22	4	16	3	9	18	19	9	10	21	13	1	12	31	6	30	21	26	4	30	26	16
Auburn,	30	7	22	3	26	3	11	17	28	8	10	21	24	8	13	31	5	29	18	7	4	29	26	16
Bridgewater,	26	7	22	4	26	3	12	17	28	14	11	21	13	1	13	4	6	30	18	8	9	29	26	16
Cambridge Washington,	26	4	22	9	16	3	12	17	19	14	4	20	13	1	12	4	5	30	20	25	4	29	26	16
Canajoharie,	26	7	22	4	31	3	11	17	25	14	29	20	24	1	13	31	5	30	20	25	4	30	20	16
Canandaigua,	25	4	19	5	28	4	27	13	31	7	28	23	10	26	11	31	5	30	29	13	3	29	25	16
Cherry-Valley,	26	7	22	3	31	3	12	17	20	14	4	19	19	1	13	31	15	29	18	8	4	29	20	16
Clinton,	30	9	22	8	15	1	9	18	26	11	14	8	23	1	12	7	4	27	5	9	4	30	26	16
Cortland,	26	7	22	9	26	3	11	17	28	8	11	30	13	1	13	31	5	29	18	31	4	29	20	16
Dutchess,	26	4	22	8	16	1	9	17	20	22	10	22	13	2	13	4	6	30	19	9	4	30	26	16
Erasmus Hall,	30	4	22	8	21	1	9	14	26	9	13	8	13	27	13	6	6	29	20	25	16	29	25	16
Fairfield,	13	7	22	3	30	4	11	18	13	2	9	14	17	28	13	22	20	12	14	18	1	29	20	17
Farmers' Hall,	15	7	22	7	16	13	11	18	19	14	13	21	24	1	15	31	6	30	19	25	4	30	26	16
Fredonia,	30	7	21	7	26	3	11	14	28	9	10	20	25	1	12	21	5	29	17	31	4	29	25	16
Gouverneur,	26	3	21	3	26	3	12	17	24	8	10	20	24	8	12	31	5	30	20	31	4	30	20	16
Granville,	26	4	22	2	16	3	30	18	31	8	13	20	25	1	12	3	5	29	18	25	4	30	26	16
Hamilton,	26	7	22	8	16	3	12	17	28	14	3	21	13	1	13	9	5	30	18	7	4	29	26	16
Hartwick,	15	7	22	9	16	1	12	17	25	15	4	20	13	1	17	4	5	30	18	25	4	30	20	17
Hudson,	27	4	22	4	16	3	10	18	29	14	12	21	14	1	12	4	6	30	19	25	4	30	26	16
Ithaca,	30	7	22	9	26	3	11	17	28	7	11	30	24	1	28	4	4	30	18	25	4	29	26	16
Johnstown,	15	7	22	4	15	3	12	17	24	14	4	30	13	1	13	4	5	30	20	11	4	30	26	17
Kinderhook,	26	4	22	4	16	3	20	18	20	14	12	21	13	1	13	31	6	30	19	25	9	29	26	16
Kingston,	26	4	22	10	16	3	9	5	20	8	13	21	13	28	12	3	6	30	19	25	4	30	30	16
Lansingburgh,	26	4	22	4	28	3	11	17	19	14	11	30	13	10	13	31	6	30	18	9	4	30	26	16
Lewiston,	12	9	21	9	20	3	9	17	25	16	11	19	24	8	12	31	18	29	17	31	4	29	25	16
Lowville,	26	3	22	8	15	3	11	17	28	15	11	21	13	8	12	31	5	29	18	31	4	29	26	16
Middlebury,	30	7	21	8	26	3	10	17	25	8	10	20	24	9	13	4	5	30	18	31	4	29	25	16
Monroe,	12	10	24	4	26	3	11	14	25	9	10	21	24	8	17	31	5	29	29	31	4	29	25	16

RECAPITULATION AND RESULTS, No. 4, (*Continued.*)

ACADEMIES.	COMPARISON OF THE WARMEST AND COLDEST DAY IN EACH MONTH.																					
	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.	
	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.
Montgomery,	26	4	13	8	31	5	10	14	19	14	3	30	13	1	3	21	5	30	19	11	16	29	26	16
Mount-Pleasant,	26	4	22	8	27	1	9	17	20	14	13	20	14	1	13	31	6	30	20	25	4	29	26	16
Newburgh,	26	4	22	8	16	1	9	17	20	14	12	20	13	1	13	4	5	30	19	31	4	29	25	16
North-Salem,	26	4	23	28	16	1	20	17	20	14	12	21	14	1	17	4	6	30	20	25	4	30	25	16
Oneida Con. Semina.	26	7	22	3	20	3	11	17	28	8	3	21	28	3	17	31	5	29	18	31	4	29	26	16
Oneida Institute,	15	4	22	3	16	3	12	17	28	14	11	21	24	8	13	31	5	29	23	31	4	29	25	16
Onondaga,	30	7	22	3	26	3	11	14	28	8	10	21	13	8	13	31	5	30	18	7	4	29	26	16
Oxford,	26	8	22	8	16	5	10	17	28	8	10	21	13	1	13	31	5	30	18	8	4	29	20	16
Oysterbay,	30	5	22	8	21	2	9	18	..	..	10	8	13&25	1	13	5	6	30	20	26	4	30	25	17
Palmyra,	25	9	21	8	15	4	11	14	28	8	11	21	12	8	13	4	5	29	18	31	4	29	26	16
Pompey,	13	7	22	3	26	3	10	14	19	8	12	20	18	1	13	4	5	30	18	25	4	29	26	16
Redhook,	26	4	21	10	16	3	9	18	31	1	13	21	24	1	13	23	6	10	20	25	4	29	25	16
Rochester,	15	4	21	8	31	1	11	17	28	8	4	7	25	12	13	4	5	30	17	31	4	29	25	16
St. Lawrence,	26	7	21	3	31	3	12	17	25	8	11	20	24	1	12	31	4	30	17	31	4	30	26	16
Schenectady,	26	7	22	4	15	3	12	16	20	14	13	21	13	1	13	4	5	30	20	25	4	30	26	16
Springville,	15	8	21	7	26	1	10	14	28	15	11	22	25	1	12	31	..	..	..	..	4	29	29	16
Union,	14	7	22	8	20	3	11	19	25	2	11	22	23	1	13	31	5	29	14	9	4	29	26	16
Union-Hall,	26	4	22	8	21	1	9	17	20	9	13	8	13	1	14	16	6	30	19	25	16	29	26	16
Utica,	26	7	22	3	28	4	12	17	28	8	13	20	25	1	13	4	5	29	18	25	5	29	26	16

RECAPITULATION AND RESULTS, No. 5.

ACADEMIES.	COMPARISON OF THE RANGE IN EACH MONTH.																							
	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.	
	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.
Albany,	49	—23	46	— 4	56	5	70	22	86	34	89	50	88	54	87	49	83	32	75	30	63	8	40	—13
Auburn,	50	— 6	49	0	53	1	70	16	79	34	86	47	84	49	84	44	80	35	75	35	64	15	45	— 5
Bridgewater,	54	—31	48	—18	55	—10	75	21	89	32	93	38	90	40	88	33	86	27	75	24	58	— 4	45	—23
Cambridge Wash	53	—36	45	—13	56	— 3	67	17	87	35	86	48	87	46	92	36	83	27	78	23	65	— 2	43	—29
Canajoharie,	46	—36	50	—16	57	— 6	70	22	88	28	92	46	94	48	96	38	94	26	80	24	69	4	44	—18
Canandaigua,	46	— 6	36	— 4	47	— 8	52	22	83	40	88	51	90	50	86	44	84	38	78	30	38	8	27	— 9
Cherry-Valley,	49	—30	48	— 6	53	— 2	72	20	80	29	88	42	88	46	86	40	88	28	83	32	67	1	40	—19
Clinton,	50	— 8	46	3	55	— 2	70	24	85	36	35	37	86	50	85	42	78	37	72	31	66	20	48	— 2
Cortland,	45	—24	46	— 8	60	— 8	78	10	83	16	87	40	88	40	89	36	86	28	76	28	66	7	42	—10
Dutchess,	50	—30	47	— 1	61	5	76	24	91	39	96	42	94	47	91	42	91	36	78	31	70	13	43	—22
Erasmus Hall,	53	— 6	54	2	61	4	71	27	85	41	84	46	87	53	84	52	81	40	71	35	69	20	48	4
Fairfield,	53	—21	44	—17	49	— 6	66	10	81	28	84	41	84	45	86	42	78	39	72	44	61	6	44	—26
Farmers' Hall,	49	—30	48	— 5	60	5	70	25	89	38	89	43	88	48	88	45	85	36	76	34	78	14	44	—10
Fredonia,	51	0	47	— 4	62	— 5	74	22	81	34	87	49	85	50	86	50	84	40	79	38	69	12	45	7
Gouverneur,	46	—35	41	—29	53	—13	78	13	84	22	90	38	85	37	92	47	79	22	75	22	62	—17	41	—40
Granville,	48	—31	42	—11	56	— 4	70	16	82	32	92	46	92	50	93	44	88	32	77	26	68	0	46	—22
Hamilton,	56	—34	48	—12	52	—15	76	15	84	24	89	38	85	46	92	33	78	27	74	27	66	5	46	—20
Hartwick,	48	0	48	0	54	0	72	20	86	30	88	42	88	43	82	38	82	28	78	29	74	4	46	1
Hudson,	50	—24	48	— 6	55	4	67	20	80	34	81	47	84	49	84	46	82	30	68	30	68	30	40	—16
Ithaca,	50	—12	58	— 8	62	— 2	78	22	89	32	95	44	96	44	98	40	90	33	86	30	73	8	50	— 5
Johnstown,	40	—30	44	—18	50	— 8	67	23	83	33	86	45	87	48	77	49	83	26	70	22	60	4	43	—18
Kinderhook,	48	—24	48	— 8	59	0	72	27	87	30	88	41	92	45	88	40	87	27	78	26	68	4	38	—17
Kingston,	52	—30	46	— 3	58	10	72	34	90	37	87	44	91	50	90	48	84	32	74	32	63	10	46	—12
Lansingburgh,	46	—28	44	0	54	8	67	23	86	33	84	52	90	52	90	44	85	36	74	30	63	10	42	—11
Lewiston,	50	1	48	— 1	60	4	67	24	80	37	88	47	89	56	90	50	82	40	80	34	66	11	40	— 1
Lowville,	46	—31	45	—23	52	—16	76	10	85	25	93	40	88	46	94	33	82	22	80	24	64	— 2	43	—40
Middlebury,	51	— 7	52	— 8	60	— 7	78	17	85	27	92	40	93	50	89	35	85	30	80	29	78	9	42	— 8
Monroe,	54	— 5	50	— 5	54	0	80	20	86	31	96	42	88	48	92	40	86	32	83	28	69	10	45	— 8

RECAPITULATION AND RESULTS, No. 5, (*Continued.*)

ACADEMIES.	COMPARISON OF THE RANGE IN EACH MONTH.																							
	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.	
	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.
Montgomery,	64	—33	46	— 7	63	3	74	25	94	39	97	44	96	45	74	52	90	31	83	28	68	10	50	— 8
Mount-Pleasant,	52	— 8	52	2	57	5	69	28	88	40	90	48	90	52	85	50	80	38	74	38	70	20	48	— 4
Newburgh,	51	—27	52	— 4	65	3	75	24	92	40	89	48	92	49	88	44	87	35	74	35	70	14	42	—15
North-Salem,	52	—31	51	—12	58	— 7	69	26	91	35	89	42	92	47	98	40	86	28	75	24	74	8	49	—17
Oneida Conference Semina.	44	—26	40	—12	50	—11	75	18	80	32	90	45	86	49	87	32	82	27	76	27	62	7	49	—19
Oneida Institute,	43	—33	46	—12	53	—13	71	11	83	31	90	41	89	43	87	40	86	29	73	28	64	8	39	—18
Onondaga,	49	—18	53	— 6	58	— 5	76	20	84	36	89	45	84	51	87	42	80	32	77	30	66	10	46	— 8
Oxford,	51	—35	51	—13	57	—11	78	9	84	25	92	40	90	42	90	40	85	28	77	31	68	7	44	—14
Oysterbay,	53	— 2	56	4	66	10	74	29	..	..	91	44	92	50	88	52	88	41	78	36	69	19	47	3
Palmyra,	48	— 9	53	— 2	54	— 1	77	19	87	30	93	44	90	45	89	38	85	29	84	33	67	18	50	— 4
Pompey,	55	—17	47	— 5	58	— 3	74	21	81	31	85	42	83	49	82	41	80	30	72	29	70	5	43	—18
Redhook,	47	—28	47	— 8	60	4	81	30	92	33	95	42	98	44	90	41	91	31	82	24	78	10	42	— 8
Rochester,	50	— 4	47	— 7	64	0	78	28	82	40	85	52	87	34	89	50	85	32	73	32	62	10	47	— 4
St. Lawrence,	48	—30	44	—28	57	—12	73	15	83	28	88	45	86	47	90	43	81	24	75	24	64	—10	47	—26
Schenectady,	44	—26	44	— 2	54	2	66	20	85	34	82	50	83	50	84	48	78	34	74	32	62	10	44	—10
Springville,	57	— 8	50	— 4	70	— 7	80	20	80	33	86	40	88	49	82	44	78	38	76	29	67	9	40	— 6
Union,	50	—28	47	—12	57	—22	77	29	80	38	92	50	92	48	92	44	85	32	78	30	65	5	47	—36
Union-Hall,	57	— 3	56	6	57	21	70	26	84	36	82	41	86	47	83	45	80	36	72	28	67	19	48	3
Utica,	49	—26	50	—12	54	— 8	70	15	81	21	85	41	82	47	86	48	82	30	77	30	68	9	43	—16

RECAPITULATION AND RESULTS, No. 6.

Comparative View of the Average or Mean Temperature for each of the last ten years, (so far as reported,) with a General Mean or Average for the whole number of those years.

ACADEMIES.	MEAN TEMPERATURE OF EACH YEAR.										Gen. Mean or Average.
	1826.	1827.	1828.	1829.	1830.	1831.	1832.	1833.	1834.	1835.	
Albany,	51.07	48.62	51.36	48.20	50.65	49.15	48.10	47.62	48.53	46.17	48.94
Auburn,	.....	48.24	49.96	46.36	47.37	.....	46.92	47.80	48.93	46.54	47.76
Bridgewater,	.....	.....	.....	.....	.....	.....	.....	43.85	42.79	41.14	42.59
Buffalo,	.....	.....	.....	.....	.....	46.78	45.60	.....	.....	.....	46.19
Cambridge Washington,	.....	45.51	49.00	45.89	47.92	46.79	45.61	45.05	46.20	43.57	46.17
Canajoharie,	.....	.....	....	.....	46.53	.....	.....	46.48	.....	44.31	45.77
Canandaigua,	.....	.....	50.71	46.22	48.86	46.28	47.16	47.29	46.92	43.68	47.14
Cayuga,	.....	.....	.....	.....	49.47	48.48	48.10	.....	48.08	.....	48.53
Cherry-Valley,	.....	44.01	47.08	44.33	45.17	44.88	44.78	44.55	45.22	43.44	44.83
Clinton,	.....	43.91	51.29	48.14	49.82	48.78	48.00	49.09	49.38	46.60	48.33
Cortland,	.....	.....	.....	.....	.....	.....	45.59	45.68	.....	43.17	44.81
Delaware,	.....	.....	46.89	.....	44.99	.....	.....	.....	.....	.....	45.94
Dutchess,	.....	.....	58.57	51.82	52.73	50.60	57.88	49.93	50.42	48.95	52.61
Erasmus Hall,	53.96	51.63	53.68	50.50	52.53	51.28	51.54	51.83	51.36	49.49	51.78
Farmers' Hall,	.....	.....	.....	.....	.....	.....	.....	.....	47.32	45.79	46.55
Fairfield,	.....	43.18	47.01	.....	.....	44.86	44.88	45.73	.....	42.99	44.77
Fredonia,	.....	.....	.....	....	49.57	47.83	49.23	.....	50.44	47.21	48.85
Franklin,	.....	.....	....	44.61	46.38	.....	.....	.....	.....	.....	45.49
Gouverneur,	.....	....	. ...	.....	.....	43.48	43.66	44.69	45.40	42.25	43.89
Granville,	.....	.....	.....	.....	.....	.....	.....	.....	.....	43.76	43.76
Greenville,	48.05	.....	.....	36.78	.....	.....	.....	.....	.....	.....	42.41
Hamilton,	.....	41.70	47.46	44.48	45.87	45.75	.....	44.99	44.49	43.83	44.82
Hartwick,	46.60	45.40	46.94	45.49	46.68	43.96	45.89	.....	.....	45.39	45.79
Hudson,	.....	41.19	52.84	49.05	.....	51.25	49.25	48.63	47.91	44.62	48.09
Ithaca,	.....	50.00	51.35	....	49.67	.....	.....	48.28	.....	46.31	49.12
Johnstown,	.....	.....	47.89	46.02	.....	46.00	45.90	.....	45.43	42.64	45.64
Kinderhook,	.....	.....	.....	.....	48.24	54.90	46.48	46.55	47.08	44.72	47.99
Kingston,	.....	.....	.....	48.43	51.47	51.06	50.50	51.40	50.10	48.25	50.17
Lansingburgh,	49.68	48.12	51.71	47.70	49.64	47.63	47.36	48.11	48.64	48.10	48.66

RECAPITULATION AND RESULTS, No. 6, (*Continued.*)

ACADEMIES.	MEAN TEMPERATURE OF EACH YEAR.										Gen. Mean or Average.
	1826.	1827.	1828.	1829.	1830.	1831.	1832.	1833.	1834.	1835.	
Lewiston,	.....	.....	.....	.....	.....	49.52	49.29	49.69	50.70	47.36	49.31
Lowville,	.....	43.77	46.95	43.38	44.60	43.97	44.15	44.02	46.03	40.75	44.18
Middlebury,	46.87	46.23	49.62	46.35	47.82	46.35	47.83	48.78	49.08	45.75	47.46
Monroe,	.....	.....	.....	.....	.....	.....	.....	.....	.....	46.56	46.56
Montgomery,	.....	.....	42.18	40.03	52.30	49.46	49.36	49.90	48.16	47.56	47.36
Mount-Pleasant,	.....	.....	.....	.....	.....	48.69	49.33	.....	50.05	48.98	49.26
Newburgh,	.....	.....	52.00	48.66	50.25	.....	50.71	49.96	50.20	48.17	49.99
North-Salem,	.....	.....	.....	50.64	49.96	48.65	48.97	48.08	48.13	46.22	48.66
Oneida Conference Seminary,	.....	.....	.....	.....	45.45	43.54	44.36	44.44	44.97	42.96	44.28
Oneida Institute	.....	.....	.....	.....	.....	.....	.....	.....	45.17	43.76	44.46
Onondaga,	50.71	48.27	50.90	47.81	.....	.....	50.21	47.81	.....	46.84	48.93
Oxford,	.....	....	.....	44.99	*46.55	46.16	.....	44.22	45.83	44.39	45.34
Oysterbay,	.....	.....	.....	.....	.....	.....	.....	.....	51.85	.....	51.85
Palmyra,	.....	.....	.....	.....	.....	.....	.....	.....	.....	45.32	45.32
Pompey,	45.97	43.50	47.33	43.38	44.68	43.08	43.40	43.12	.....	42.16	44.06
Redhook,	.....	.....	.....	.....	49.10	49.31	47.86	45.70	49.68	46.74	47.89
Rochester,	.....	.....	.....	.....	49.27	.....	.....	48.18	47.48	47.40	48.08
St. Lawrence,	.....	....	46.01	44.06	44.58	43.48	42.84	40.57	42.76	42.57	43.35
Schenectady,	....	.....	.....	46.77	.....	.....	.....	.....	47.85	45.88	46.83
Springville,	.....	.....	.....	.....	.....	.....	.....	.....	48.90	.....	48.90
Union,	.....	.....	.....	.....	45.94	46.15	.....	45.48	46.52	45.12	45.84
Union-Hall,	52.19	50.95	52.65	48.51	51.05	49.51	49.20	51.84	50.10	46.84	50.22
Utica,	48.73	47.11	50.40	44.50	46.44	45.24	43.99	44.28	44.90	42.59	45.81
Washington,	.....	.....	48.63	44.52	46.02	.....	.....	.....	....	.....	46.39

RECAPITULATION AND RESULTS, No. 7.

Comparative View of the Prevailing Winds for each of the last ten years, (so far as reported,) with the Prevailing Winds for the whole number of those years.

ACADEMIES.	PREVAILING WINDS IN EACH YEAR.										General prevailing wind.
	1826.	1827.	1828.	1829.	1830.	1831.	1832.	1833.	1834.	1835.	
Albany,	S	S	S	S	NW	S	S	S	S	S	South.
Auburn,	....	S	S	S	S	....	S	NW	NW	NW	South.
Bridgewater,	....	....	....	....	....	....	....	W	W	W	West.
Buffalo,	....	....	....	....	....	SW	SW	....	....	....	Southwest.
Cambridge Washington,	....	SW	SW	SW	S	S	S	S	N	N	South.
Canajoharie,	....	....	....	....	....	....	....	W	....	NW	W & NW.
Canandaigua,	....	....	NW	W	W	W	S	S	W	W	West.
Cayuga,	....	S	....	....	S	S	S	....	S	....	South.
Cherry-Valley,	....	SW	W	W	W	W	W	W	W	W	West.
Clinton,	....	NW	E	NW	NW	NW	NW	NW	NW	NW	Northwest.
Cortland,	....	....	....	....	....	....	S	S	....	NW	South.
Delaware,	....	....	SW	....	....	....	....	....	....	....	Southwest.
Dutchess,	....	....	SW	NW	SW	S	S	SE	SE	SE	Southeast.
Erasmus-Hall,	NW	NW	SW	NW	NW	NW	SW	NW	NW	SW	Northwest.
Farmers' Hall,	....	....	....	....	....	....	....	....	SW	SW	Southwest.
Fairfield,	....	NW	E	....	W	NW	NW	NW	....	NW	Northwest.
Fredonia,	....	....	....	....	W	W	SW	....	W	SW	West.
Franklin,	....	NW	NW	NW	W	NW	....	....	....	....	Northwest.
Gouverneur,	....	....	....	....	....	W	SW	SW	SW	SW	Southwest.
Granville,	....	....	....	....	....	....	....	....	N	SW	N & SW
Greenville,	NW	NW	NW	....	....	....	....	....	....	....	Northwest.
Hamilton,	NW	NW	SW	NW	NW	NW	S	NW	SW	SW&NW	Northwest.
Hartwick,	NW	W	S	S	S	S	S	....	....	S	South.
Hudson,	....	NW	S	N	N	N	SE	SE	SE	S	N & SE.
Ithaca,	....	....	S	....	NW	....	....	S	....	S	South.
Johnstown,	....	W	W	W	W	W	W	....	W	W	West.
Kinderhook,	....	....	....	....	S	S	S	S	N	S	South.
Kingston,	....	....	....	SW	NW	NW	W	NW	NW	SW	Northwest.
Lansingburgh,	S	W	S	S	S	S	S	S	NW	NW	South.

RECAPITULATION AND RESULTS, No. 7, (*Continued.*)

ACADEMIES.	PREVAILING WINDS IN EACH YEAR.										General prevailing wind.
	1826.	1827.	1828.	1829.	1830.	1831.	1832.	1833.	1834.	1835.	
Lewiston,	....	....	....	....	....	SW	Sr	SW	SW	SW	Southwest.
Lowville,	....	NW	NW	NW	NW	NW	S	N	....	W	Northwest.
Middlebury,	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	Southwest.
Monroe,	.. ..	....	....	....	....	....	....	....	....	S	South.
Montgomery,	....	....	S	S	S	SW	SW	SW	NW	W	S & SW.
Mount-Pleasant,	....	....	....	....	....	NW	NW	....	NW	NW	Northwest.
Newburgh,	...	....	SW	SW	....	....	SW	SW	NE	SW	Southwest.
North-Salem,	....	....	....	NW	NW	NW	NW	NW	NW	W	Northwest.
Oneida Con. Semina.	....	....	....	....	NW	NW	NW	NW	NW	NW	Northwest.
Oneida Institute,	....	....	....	....	....	....	....	....	W	W	West.
Onondaga,	S	S	S	W	....	....	S	W	....	W	South.
Oxford,	....	....	....	W	SW	W	SW	W	W	W	West.
Oysterbay,	....	....	....	....	....	....	....	....	SW	....	Southwest.
Palmyra,	....	...	....	...	....	....	....	....	....	SW	Southwest.
Pompey,	SW	NW	SW	SW	SW	SW	SW	SW	....	W	Southwest.
Redhook,	....	....	....	....	S	S	S	N	N	S	South.
Rochester,	....	....	....	....	W	....	....	W	W	SW	West.
St. Lawrence,	...	SW	NW	SW	SW	SW	SW	SW	SW	SW	Southwest.
Schenectady,	....	W	W	W	....	....	....	....	....	....	West.
Springville,	....	....	....	....	....	....	....	....	....	W	West.
Union,	....	...	....	....	S	W	....	SW	S	S	South.
Union-Hall,	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	Northwest.
Utica,	W	W	W	W	W	W	W	W	W	W	West.
Washington,	....	....	SW	SW	SW	....	....	....	....	....	Southwest.

RECAPITULATION AND RESULTS, No. 4.

COMPARISON OF THE WARMEST AND COLDEST DAY IN EACH MONTH.

ACADEMIES.	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.	
	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.
Albany,	26	4	22	4	16	3	9	18	19	9	10	21	13	1	12	31	6	30	21	26	4	30	26	16
Auburn,	30	7	22	3	26	3	11	17	28	8	10	21	24	8	13	31	5	29	18	7	4	29	26	16
Bridgewater,	26	7	22	4	26	3	12	17	28	14	11	21	13	1	13	4	6	30	18	8	9	29	26	16
Cambridge Washington,	26	4	22	9	16	3	12	17	19	14	4	20	13	1	12	4	5	30	20	25	4	29	26	16
Canajoharie,	26	7	22	4	31	3	11	17	25	14	29	20	24	1	13	31	5	30	20	25	4	30	20	16
Canandaigua,	25	4	19	5	28	4	27	13	31	7	28	23	10	26	11	31	5	30	29	13	3	29	25	16
Cherry-Valley,	26	7	22	3	31	3	12	17	20	14	4	19	19	1	13	31	15	29	18	8	4	29	20	16
Clinton,	30	9	22	8	15	1	9	18	26	11	14	8	23	1	12	7	4	27	5	9	4	30	26	16
Cortland,	26	7	22	9	26	3	11	17	28	8	11	30	13	1	13	31	5	29	18	31	4	29	20	16
Dutchess,	26	4	22	8	16	1	9	17	20	22	10	22	13	2	13	4	6	30	19	9	4	30	26	16
Erasmus Hall,	30	4	22	8	21	1	9	14	26	9	13	8	13	27	13	6	6	29	20	25	16	29	25	16
Fairfield,	13	7	22	3	30	4	11	18	13	2	9	14	17	28	13	22	20	12	14	18	1	29	20	17
Farmers' Hall,	15	7	22	7	16	13	11	18	19	14	13	21	24	1	15	31	6	30	19	25	4	30	26	16
Fredonia,	30	7	21	7	26	3	11	14	28	9	10	20	25	1	12	21	5	29	17	31	4	29	25	16
Gouverneur,	26	3	21	3	26	3	12	17	24	8	10	20	24	8	12	31	5	30	20	31	4	30	20	16
Granville,	26	4	22	2	16	3	30	18	31	8	13	20	25	1	12	3	5	29	18	25	4	30	26	16
Hamilton,	26	7	22	8	16	3	12	17	28	14	3	21	13	1	13	9	5	30	18	7	4	29	26	16
Hartwick,	15	7	22	9	16	1	12	17	25	15	4	20	13	1	17	4	5	30	18	25	4	30	20	17
Hudson,	27	4	22	4	16	3	10	18	29	14	12	21	14	1	12	4	6	30	19	25	4	30	26	16
Ithaca,	30	7	22	9	26	3	11	17	28	7	11	30	24	1	28	4	4	30	18	25	4	29	26	16
Johnstown,	15	7	22	4	15	3	12	17	24	14	4	30	13	1	13	4	5	30	20	11	4	30	26	17
Kinderhook,	26	4	22	4	16	3	20	18	20	14	12	21	13	1	13	31	6	30	19	25	9	29	26	16
Kingston,	26	4	22	10	16	3	9	5	20	8	13	21	13	28	12	3	6	30	19	25	4	30	30	16
Lansingburgh,	26	4	22	4	28	3	11	17	19	14	11	30	13	10	13	31	6	30	18	9	4	30	26	16
Lewiston,	12	9	21	9	20	3	9	17	25	16	11	19	24	8	12	31	18	29	17	31	4	29	25	16
Lowville,	26	3	22	8	15	3	11	17	28	15	11	21	13	8	12	31	5	29	18	31	4	29	26	16
Middlebury,	30	7	21	8	26	3	10	17	25	8	10	20	24	9	13	4	5	30	18	31	4	29	25	16
Monroe,	12	10	24	4	26	3	11	14	25	9	10	21	24	8	17	31	5	29	29	31	4	29	25	16

RECAPITULATION AND RESULTS, No. 4, (*Continued.*)

ACADEMIES.	COMPARISON OF THE WARMEST AND COLDEST DAY IN EACH MONTH.																					
	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.	
	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.
Montgomery,	26	4	13	8	31	5	10	14	19	14	3	30	13	1	3	21	5	30	19	11	16	29	26	16
Mount-Pleasant,	26	4	22	8	27	1	9	17	20	14	13	20	14	1	13	31	6	30	20	25	4	29	26	16
Newburgh,	26	4	22	8	16	1	9	17	20	14	12	20	13	1	13	4	5	30	19	31	4	29	25	16
North-Salem,	26	4	23	28	16	1	20	17	20	14	12	21	14	1	17	4	6	30	20	25	4	30	25	16
Oneida Con. Semina.	26	7	22	3	20	3	11	17	28	8	3	21	28	3	17	31	5	29	18	31	4	29	26	16
Oneida Institute,	15	4	22	3	16	3	12	17	28	14	11	21	24	8	13	31	5	29	23	31	4	29	25	16
Onondaga,	30	7	22	3	26	3	11	14	28	8	10	21	13	8	13	31	5	30	18	7	4	29	26	16
Oxford,	26	8	22	8	16	5	10	17	28	8	10	21	13	1	13	31	5	30	18	8	4	29	20	16
Oysterbay,	30	5	22	8	21	2	9	18	..	..	10	8	13&25	1	13	5	6	30	20	26	4	30	25	17
Palmyra,	25	9	21	8	15	4	11	14	28	8	11	21	12	8	13	4	5	29	18	31	4	29	26	16
Pompey,	13	7	22	3	26	3	10	14	19	8	12	20	18	1	13	4	5	30	18	25	4	29	26	16
Redhook,	26	4	21	10	16	3	9	18	31	1	13	21	24	1	13	23	6	10	20	25	4	29	25	16
Rochester,	15	4	21	8	31	1	11	17	28	8	4	7	25	12	13	4	5	30	17	31	4	29	25	16
St. Lawrence,	26	7	21	3	31	3	12	17	25	8	11	20	24	1	12	31	4	30	17	31	4	30	26	16
Schenectady,	26	7	22	4	15	3	12	16	20	14	13	21	13	1	13	4	5	30	20	25	4	30	26	16
Springville,	15	8	21	7	26	1	10	14	28	15	11	22	25	1	12	31	..	..	..	..	4	29	20	16
Union,	14	7	22	8	20	3	11	19	25	2	11	22	23	1	13	31	5	29	14	9	4	29	26	16
Union-Hall,	26	4	22	8	21	1	9	17	20	9	13	8	13	1	14	16	6	30	19	25	16	29	26	16
Utica,	26	7	22	3	28	4	12	17	28	8	13	20	25	1	13	4	5	29	18	25	5	29	26	16

RECAPITULATION AND RESULTS, No. 5.

ACADEMIES.	COMPARISON OF THE RANGE IN EACH MONTH.																							
	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.	
	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.
Albany,	49	—23	46	— 4	56	5	70	22	86	34	89	50	88	54	87	49	83	32	75	30	63	8	40	—13
Auburn,	50	— 6	49	0	53	1	70	16	79	34	86	47	84	49	84	44	80	35	75	35	64	15	45	— 5
Bridgewater,	54	—31	48	—18	55	—10	75	21	89	32	93	38	90	40	88	33	86	27	75	24	58	— 4	45	—23
Cambridge Wash	53	—36	45	—13	56	— 3	67	17	87	35	86	48	87	46	92	36	83	27	78	23	65	— 2	43	—29
Canajoharie,	46	—36	50	—16	57	— 6	70	22	88	28	92	46	94	48	96	38	94	26	80	24	69	4	44	—18
Canandaigua,	46	— 6	36	— 4	47	— 8	52	22	83	40	88	51	90	50	86	44	84	38	78	30	38	8	27	— 9
Cherry-Valley,	49	—30	48	— 6	53	— 2	72	20	80	29	88	42	88	46	86	40	88	28	83	32	67	1	40	—19
Clinton,	50	— 8	46	3	55	— 2	70	24	85	36	35	37	86	50	85	42	78	37	72	31	66	20	48	— 2
Cortland,	45	—24	46	— 8	60	— 8	78	10	83	16	87	40	88	40	89	36	86	28	76	28	66	7	42	—10
Dutchess,	50	—30	47	— 1	61	5	76	24	91	39	96	42	94	47	91	42	91	36	78	31	70	13	43	—22
Erasmus Hall,	53	— 6	54	2	61	4	71	27	85	41	84	46	87	53	84	52	81	40	71	35	69	20	48	4
Fairfield,	53	—21	44	—17	49	— 6	66	10	81	28	84	41	84	45	86	42	78	39	72	44	61	6	44	—26
Farmers' Hall,	49	—30	48	— 5	60	5	70	25	89	38	89	43	88	48	88	45	85	36	76	34	78	14	44	—10
Fredonia,	51	0	47	— 4	62	— 5	74	22	81	34	87	49	85	50	86	50	84	40	79	38	69	12	45	7
Gouverneur,	46	—35	41	—29	53	—13	78	13	84	22	90	38	35	37	92	47	79	22	75	22	62	—17	41	—40
Granville,	48	—31	42	—11	56	— 4	70	16	82	32	92	46	92	50	93	44	88	32	77	26	68	0	46	—22
Hamilton,	56	—34	48	—12	52	—15	76	15	84	24	89	38	85	46	92	33	78	27	74	27	66	5	46	—20
Hartwick,	48	0	48	0	54	0	72	20	86	30	88	42	88	43	82	38	82	28	78	29	74	4	46	1
Hudson,	50	—24	48	— 6	55	4	67	20	80	34	81	47	84	49	84	46	82	30	68	30	68	30	40	—16
Ithaca,	50	—12	58	— 8	62	— 2	78	22	89	32	95	44	96	44	98	40	90	33	86	30	73	8	50	— 5
Johnstown,	40	—30	44	—18	50	— 8	67	23	83	33	86	45	87	48	77	49	83	26	70	22	60	4	48	—18
Kinderhook,	48	—24	48	— 8	59	0	72	27	87	30	88	41	92	45	88	40	87	27	78	26	68	4	38	—17
Kingston,	52	—30	46	— 3	58	10	72	34	90	37	87	44	91	50	90	48	84	32	74	32	63	10	46	—12
Lansingburgh,	46	—28	44	0	54	8	67	23	86	33	84	52	90	52	90	44	85	36	74	30	63	10	42	—11
Lewiston,	50	1	48	— 1	60	4	67	24	80	37	88	47	89	56	90	50	82	40	80	34	66	11	40	— 1
Lowville,	46	—31	45	—23	52	—16	76	10	85	25	93	40	88	46	94	33	82	22	80	24	64	— 2	43	—40
Middlebury,	51	— 7	52	— 8	60	— 7	78	17	85	27	92	40	93	50	89	35	85	30	80	29	78	9	42	— 8
Monroe,	54	— 5	50	— 5	54	0	80	20	86	31	96	42	88	48	92	40	86	32	83	28	69	10	45	— 8

RECAPITULATION AND RESULTS, No. 5, (*Continued.*)

ACADEMIES.	COMPARISON OF THE RANGE IN EACH MONTH.																							
	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.	
	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.
Montgomery,	64	—33	46	— 7	63	3	74	25	94	39	97	44	96	45	74	52	90	31	83	28	68	10	50	— 8
Mount-Pleasant,	52	— 8	52	2	57	5	69	28	88	40	90	48	90	52	85	50	80	38	74	38	70	20	48	— 4
Newburgh,	51	—27	52	— 4	65	3	75	24	92	40	89	48	92	49	88	44	87	35	74	35	70	14	42	—15
North-Salem,	52	—31	51	—12	58	— 7	69	26	91	35	89	42	92	47	98	40	86	28	75	24	74	3	49	—17
Oneida Conference Semina.	44	—26	40	—12	50	—11	75	18	80	32	90	45	86	49	87	32	82	27	76	27	62	7	49	—19
Oneida Institute,	43	—33	46	—12	53	—13	71	11	83	31	90	41	89	43	87	40	86	29	73	28	64	3	39	—18
Onondaga,	49	—18	53	— 6	58	— 5	76	20	84	36	89	43	84	51	87	42	80	32	77	30	66	10	46	— 8
Oxford,	51	—35	51	—13	57	—11	78	9	84	25	92	40	90	42	90	40	85	28	77	31	68	7	44	—14
Oysterbay,	53	— 2	56	4	66	10	74	29	..	..	91	44	92	50	88	52	88	41	78	36	69	19	47	3
Palmyra,	48	— 9	53	— 2	54	— 1	77	19	87	30	93	44	90	45	89	38	85	29	84	33	67	18	50	— 4
Pompey,	55	—17	47	— 5	58	— 3	74	21	81	31	85	42	83	49	82	41	80	30	72	29	70	5	43	—18
Redhook,	47	—28	47	— 8	60	4	81	30	92	33	95	42	98	44	90	41	91	31	82	24	78	10	42	— 8
Rochester,	50	— 4	47	— 7	64	0	78	28	82	40	85	52	87	34	89	50	85	32	73	32	62	10	47	— 4
St. Lawrence,	48	—30	44	—28	57	—12	73	15	83	28	88	45	86	47	90	43	81	24	75	24	64	—10	47	—26
Schenectady,	44	—26	44	— 2	54	2	66	20	85	34	82	50	83	50	84	48	78	34	74	32	62	10	44	—10
Springville,	57	— 8	50	— 4	70	— 7	80	20	80	33	86	40	88	49	82	44	78	38	76	29	67	9	40	— 6
Union,	50	—28	47	—12	57	—22	77	29	80	38	92	50	92	48	92	44	85	32	78	30	65	5	47	—36
Union-Hall,	57	— 3	56	6	57	21	70	26	84	36	82	41	86	47	83	45	80	36	72	28	67	19	48	3
Utica,	49	—26	50	—12	54	— 8	70	15	81	21	85	41	82	47	86	48	82	30	77	30	68	9	43	—16

RECAPITULATION AND RESULTS, No. 3.

ACADEMIES.	WEATHER, (NO. OF DAYS.)					RAIN GAGE FOR EACH MONTH.												Total fall of rain & snow.	Driest month in the year.	Wettest month in the year.
	Clear.	Cloudy.	Rain.	Snow.	Rain&Snow.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.			
Albany,	213½	151½	75	26	5	4.64	1.79	2.60	4.54	2.71	6.48	5.39	5.34	1.28	2.22	2.26	1.19	40.44	D cember,..	June.
Auburn,	195	170	35	19	5½	1.77	1.47	1.77	4.68	1.13	6.39	3.12	4.30	2.02	3.65	2.40	1.63	34.33	May,	June.
Bridgewater,	.....	.....	34	24½	6	4.10	5.01	4.96	11.31	2.49	8.69	4.70	4.38	1.31	5.15	2.20	1.66	55.96	September, .	April.
Cambridge Washington,	197½	167½	42½	13½	3½	4.25	2.15	2.20	1.95	2.65	6.25	4.48	5.30	1.10	2.67	2.09	.92	35.92	December,...	June.
Canajoharie,	178½	186½	69½	30	2	2.70	....	....	....	....	....	2.85	....	....	....	....	....	.....		
Canandaigua,	169	196	52	39	6	2.64	3.95	3.12	3.76	4.30	3.80	4.05	4.42	3.70	4.00	3.06	2.05	43.35	December,..	August.
Cherry-Valley,	174½	190½	41	34½	1	3.24	1.46	2.10	3.43	1.61	6.92	3.71	5.17	1.76	1.78	2.44	1.26	34.88	ecember,..	June.
Clinton,	252½	112½	38½	3½	½	2.45	1.63	4.22	5.69	1.79	1.68	1.39	2.93	.86	2.34	2.79	2.78	30.55	September,..	April.
Cortland,	186½	178½	38	30	....	....	....	....	....	....	....	....	....	....	....	....	....	.....		
Dutchess,	237	128	36	17½	1	3.55	1.28	2.74	5.03	1.66	2.91	2.89	1.47	.89	1.59	2.19	2.78	28.98	September, .	April.
Erasmus Hall,	253	112	38	7	½	2.65	1.29	4.71	6.22	1.76	3.25	5.13	2.84	1.27	2.11	3.16	3.71	38.11	September, .	April.
Fairfield,	118	247	46½	38	1	1.82	2.25	1.63	1.68	1.10	6.38	4.65	6.79	3.01	4.63	1.42	.81	36.17	December,..	June.
Farmers' Hall,	236	129	31½	7	2	3.30	.95	1.69	3.42	1.60	3.32	2.59	1.54	1.36	1.61	1.69	2.55	25.62	February, ..	April.
Fredonia,	195½	169½	96	38	10	.99	2.59	1.62	1.68	1.49	7.30	3.52	4.20	5.58	6.06	1.84	4.09	40.96	January,....	June.
Gouverneur,	201	164	40	20½	1	5.80	2.22	3.25	8.25	3.95	2.69	4.85	4.85	2.44	4.57	2.82	.47	46.16	December,..	April.
Granville,	183½	181½	35½	13	2½	2.99	1.08	1.20	3.36	2.84	4.78	3.18	5.02	1.53	1.79	1.96	1.17	28.90	February, ..	August.
Hamilton,	184½	180½	.....	23	1½	2.17	2.50	1.90	5.05	1.98	8.04	3.87	3.06	.88	3.86	....	....	....		
Hartwick,	170	195	35	24½	3½	2.53	1.26	1.07	3.78	1.91	4.58	4.33	4.15	1.13	3.07	1.97	.70	30.48	December,..	June.
Hudson,	182	183	48½	10	1	4.60	.65	2.45	4.50	2.29	5.79	4.09	3.56	1.88	1.65	1.65	1.19	34.30	February, ..	June.
Ithaca,	179	186	90	21½	1½	.20	1.62	2.43	3.10	2.01	4.30	3.76	4.39	1.58	3.39	.56	....	.....		
Johnstown,	175	190	55	22	5	3.76	1.98	3.42	4.42	1.95	8.04	4.71	5.95	.71	2.11	3.46	.50	41.01	December,..	June.
Kinderhook,	167½	197½	65	16½	10½	3.73	1.31	2.65	3.74	1.73	9.70	4.03	4.55	1.03	1.38	1.91	1.24	37.00	September, .	June.
Kingston,	194½	170½	51½	13	4½	3.94	1.20	2.33	5.98	1.70	4.21	4.65	2.79	1.28	1.41	2.30	2.15	33.94	February ..	April.
Lansingburgh,	196½	168½	45	7½	....	.25	1.30	.17	1.92	1.86	4.83	2.10	4.10	.95	1.96	2.11	1.00	22.55	March, ...	June.
Lewiston,	175	190	45½	15	....	3.31	2.30	.75	2.47	2.86	2.78	.80	2.50	2.53	3.97	1.11	.30	25.68	December,..	October.
Lowville,	172	193	29	29	2½	3.02	2.40	1.35	2.61	1.64	6.75	4.51	5.12	1.48	5.49	2.25	2.50	39.12	March, ...	June.
Middlebury,	208	157	39½	16	4	1.48	1.58	2.25	3.75	1.74	5.78	2.00	4.49	2.15	6.69	1.85	.39	34.15	December,..	October.
Monroe,	216½	148½	43½	24½	1	1.28	1.34	1.06	3.18	.67	4.25	2.13	4.78	3.60	5.75	2.10	.50	30.64	December,..	October.
Montgomery,	193	172	43	7	4½	4.25	1.37	1.70	3.35	1.35	1.25	3.65	1.70	1.72	1.75	1.70	2.54	26.33	June, ...	January.

RECAPITULATION AND RESULTS, No. 3, (*Continued.*)

ACADEMIES.	WEATHER, (NO. OF DAYS.)					RAIN GAGE FOR EACH MONTH.												Total fall of rain & snow.	Driest month in the year.	Wettest month in the year.
	Clear.	Cloudy.	Rain.	Snow.	Rain&Snow.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.			
Mount-Pleasant,	226	139	41	7½	2	4.51	2.30	2.96	4.94	1.77	1.48	4.05	3.71	.97	2.15	3.35	2.31	34.50	September, .	April.
Newburgh,	202½	162½	39	11½	2	3.05	1.15	2.15	3.07	1.83	3.59	2.36	1.64	.94	1.65	2.41	1.20	25.04	September, .	June.
North Salem,	254½	110½	46	9	5	6.12	.32	1.77	6.25	1.46	1.96	5.52	2.07	1.44	3.42	1.88	2.78	35.49	February, ..	April.
Oneida Conference Seminary,	182	183	31	22½	½	1.44	1.61	.86	4.60	2.77	5.97	3.03	4.24	1.97	2.53	1.50	3.83	34.35	March, ...	June.
Oneida Institute,	205½	159½	51	21	4	1.77	1.37	1.29	3.09	.99	4.36	1.98	2.66	.84	2.39	1.93	2.33	25.00	September, .	June.
Onondaga,	167½	197½	48	23½	3	.93	1.43	1.31	4.28	1.07	6.53	2.71	5.69	1.96	3.27	2.31	.94	32.43	January, ...	June.
Oxford,	149	216	63	35	7	2.35	1.68	1.93	5.27	2.14	5.72	3.46	5.38	1.79	5.12	2.92	.90	38.66	December, ..	June.
Oysterbay,	.....	.....	.....	.....	....	3.45	.55	3.42	5.33	....	1.89	4.36	1.96	.91	....	1.71	2.64	.....		
Palmyra,	185½	179½	23½	10	1	1.22	.85	1.65	4.00	.98	5.61	4.19	4.08	3.27	5.06	1.96	.93	33.80	February, ..	June.
Pompey,	170½	194½	34	23½	2	2.04	3.05	2.95	2.06	2.47	5.96	2.73	3.71	2.25	3.26	1.82	.97	33.27	December, ..	June.
Redhook,	196½	148½	52	8½	0	4.25	....	1.00	3.33	3.41	2.38	4.75	1.48	.82	1.35	1.81	1.20	.....		
Rochester,	147½	217½	58	27½	0	1.15	.81	.60	4.46	.79	5.49	1.83	3.57	2.63	4.56	2.25	.46	28.60	December, ..	June.
St. Lawrence,	201½	163½	45	26	1	1.43	1.53	.47	2.59	2.58	2.48	4.30	4.48	2.34	4.70	2.20	.58	29.68	March, ...	October.
Schenectady,	.....	.....	.....	.....	....	2.72	.63	3.06	4.15	1.89	2.83	3.37	4.03	1.19	2.89	2.35	6.56	35.67	February, ..	December.
Springville,	138	227	55	27	2	.90	3.40	2.56	3.35	3.20	3.75	3.45	3.69	4.08	6.23	1.50	2.50	38.66	January, ...	October.
Union,	163½	201½	50½	33½	½	1.60	3.13	.70	.84	1.34	.89	1.96	6.53	2.29	6.38	2.53	2.32	30.51	March, ...	August.
Union-Hall,	221½	143½	61½	6½	3½	3.15	.63	2.17	3.93	.76	3.39	4.19	2.65	1.50	1.74	2.62	2.05	28.78	February, ..	July.
Utica,	248	117	.....	.....	....	3.31	1.79	1.93	3.67	2.18	6.88	4.89	6.50	1.38	2.32	2.60	1.16	38.61	December, ..	June.

RECAPITULATION AND RESULTS, No. 4.

COMPARISON OF THE WARMEST AND COLDEST DAY IN EACH MONTH.

ACADEMIES.	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.	
	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.
Albany,	26	4	22	4	16	3	9	18	19	9	10	21	13	1	12	31	6	30	21	26	4	30	26	16
Auburn,	30	7	22	3	26	3	11	17	23	8	10	21	24	8	13	31	5	29	18	7	4	29	26	16
Bridgewater,	26	7	22	4	26	3	12	17	28	14	11	21	13	1	13	4	6	30	18	8	9	29	26	16
Cambridge Washington,	26	4	22	9	16	3	12	17	19	14	4	20	13	1	12	4	5	30	20	25	4	29	26	16
Canajoharie,	26	7	22	4	31	3	11	17	25	14	29	20	24	1	13	31	5	30	20	25	4	30	20	16
Canandaigua,	25	4	19	5	28	4	27	13	31	7	28	23	10	26	11	31	5	30	29	13	3	29	25	16
Cherry-Valley,	26	7	22	3	31	3	12	17	20	14	4	19	19	1	13	31	15	29	18	8	4	29	20	16
Clinton,	30	9	22	8	15	1	9	18	26	11	14	8	23	1	12	7	4	27	5	9	4	30	26	16
Cortland,	26	7	22	9	26	3	11	17	28	8	11	30	13	1	13	31	5	29	18	31	4	29	20	16
Dutchess,	26	4	22	8	16	1	9	17	20	22	10	22	13	2	13	4	6	30	19	9	4	30	26	16
Erasmus Hall,	30	4	22	8	21	1	9	14	26	9	13	8	13	27	13	6	6	29	20	25	16	29	25	16
Fairfield,	13	7	22	3	30	4	11	18	13	2	9	14	17	28	13	22	20	12	14	18	1	29	20	17
Farmers' Hall,	15	7	22	7	16	13	11	18	19	14	13	21	24	1	15	31	6	30	19	25	4	30	26	16
Fredonia,	30	7	21	7	26	3	11	14	28	9	10	20	25	1	12	21	5	29	17	31	4	29	25	16
Gouverneur,	26	3	21	3	26	3	12	17	24	8	10	20	24	8	12	31	5	30	20	31	4	30	20	16
Granville,	26	4	22	2	16	3	30	18	31	8	13	20	25	1	12	3	5	29	18	25	4	30	26	16
Hamilton,	26	7	22	8	16	3	12	17	28	14	3	21	13	1	13	9	5	30	18	7	4	29	26	16
Hartwick,	15	7	22	9	16	1	12	17	25	15	4	20	13	1	17	4	5	30	18	25	4	30	20	17
Hudson,	27	4	22	4	16	3	10	18	29	14	12	21	14	1	12	4	6	30	19	25	4	30	26	16
Ithaca,	30	7	22	9	26	3	11	17	28	7	11	30	24	1	28	4	4	30	18	25	4	29	26	16
Johnstown,	15	7	22	4	15	3	12	17	24	14	4	30	13	1	13	4	5	30	20	11	4	30	26	17
Kinderhook,	26	4	22	4	16	3	20	18	20	14	12	21	13	1	13	31	6	30	19	25	9	29	26	16
Kingston,	26	4	22	10	16	3	9	5	20	8	13	21	13	28	12	3	6	30	19	25	4	30	30	16
Lansingburgh,	26	4	22	4	28	3	11	17	19	14	11	30	13	10	13	31	6	30	18	9	4	30	26	16
Lewiston,	12	9	21	9	20	3	9	17	25	16	11	19	24	8	12	31	18	29	17	31	4	29	25	16
Lowville,	26	3	22	8	15	3	11	17	28	15	11	21	13	8	12	31	5	29	18	31	4	29	26	16
Middlebury,	30	7	21	8	26	3	10	17	25	8	10	20	24	9	13	4	5	30	18	31	4	29	25	16
Monroe,	12	10	24	4	26	3	11	14	25	9	10	21	24	8	17	31	5	29	29	31	4	29	25	16

RECAPITULATION AND RESULTS, No. 4, (*Continued.*)

ACADEMIES.	COMPARISON OF THE WARMEST AND COLDEST DAY IN EACH MONTH.																					
	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.	
	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.	Warmest.	Coldest.
Montgomery,	26	4	13	8	31	5	10	14	19	14	3	30	13	1	3	21	5	30	19	11	16	29	28	16
Mount-Pleasant,	26	4	22	8	27	1	9	17	20	14	13	20	14	1	13	31	6	30	20	25	4	29	26	16
Newburgh,	26	4	22	8	16	1	9	17	20	14	12	20	13	1	13	4	5	30	19	31	4	29	25	16
North-Salem,	26	4	23	28	16	1	20	17	20	14	12	21	14	1	17	4	6	30	20	25	4	30	25	16
Oneida Con. Semina.	26	7	22	3	20	3	11	17	28	8	3	21	28	3	17	31	5	29	18	31	4	29	26	16
Oneida Institute,	15	4	22	3	16	3	12	17	28	14	11	21	24	8	13	31	5	29	23	31	4	29	25	16
Onondaga,	30	7	22	3	26	3	11	14	28	8	10	21	13	8	13	31	5	30	18	7	4	29	26	16
Oxford,	26	8	22	8	16	5	10	17	28	8	10	21	13	1	13	31	5	30	18	8	4	29	29	16
Oysterbay,	30	5	22	8	21	2	9	18	..	..	10	8	13&25	1	13	5	6	30	20	26	4	30	25	17
Palmyra,	25	9	21	8	15	4	11	14	28	8	11	21	12	8	13	4	5	29	18	31	4	29	26	16
Pompey,	13	7	22	3	26	3	10	14	19	8	12	20	18	1	13	4	5	30	18	25	4	29	26	16
Redhook,	26	4	21	10	16	3	9	18	31	1	13	21	24	1	13	23	6	10	20	25	4	29	25	16
Rochester,	15	4	21	8	31	1	11	17	28	8	4	7	25	12	13	4	5	30	17	31	4	29	25	16
St. Lawrence,	26	7	21	3	31	3	12	17	25	8	11	20	24	1	12	31	4	30	17	31	4	30	26	16
Schenectady,	26	7	22	4	15	3	12	16	20	14	13	21	13	1	13	4	5	30	20	25	4	30	26	16
Springville,	15	8	21	7	26	1	10	14	28	15	11	22	25	1	12	31	..	..	..	..	4	29	29	16
Union,	14	7	22	8	20	3	11	19	25	2	11	22	23	1	13	31	5	29	14	9	4	29	26	16
Union-Hall,	26	4	22	8	21	1	9	17	20	9	13	8	13	1	14	16	6	30	19	25	16	29	26	16
Utica,	26	7	22	3	28	4	12	17	28	8	13	20	25	1	13	4	5	29	18	25	5	29	26	16

RECAPITULATION AND RESULTS, No. 5.

COMPARISON OF THE RANGE IN EACH MONTH.

ACADEMIES.	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.	
	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.
Albany,	49	—23	46	— 4	56	5	70	22	86	34	89	50	88	54	87	49	83	32	75	30	63	8	40	—13
Auburn,	50	— 6	49	0	53	1	70	16	79	34	86	47	84	49	84	44	80	35	75	35	64	15	45	— 5
Bridgewater,	54	—31	48	—18	55	—10	75	21	89	32	93	38	90	40	88	33	86	27	75	24	58	— 4	45	—23
Cambridge Wash	53	—36	45	—13	56	— 3	67	17	87	35	86	48	87	46	92	36	83	27	78	23	65	— 2	43	—29
Canajoharie,	46	—36	50	—16	57	— 6	70	22	88	28	92	46	94	48	96	38	94	26	80	24	69	4	44	—18
Canandaigua,	46	— 6	36	— 4	47	— 8	52	22	83	40	88	51	90	50	86	44	84	38	78	30	38	8	27	— 9
Cherry-Valley,	49	—30	48	— 6	53	— 2	72	20	80	29	88	42	88	46	86	40	88	28	83	32	67	1	40	—19
Clinton,	50	— 8	46	3	55	— 2	70	24	85	36	35	37	86	50	85	42	78	37	72	31	66	20	48	— 2
Cortland,	45	—24	46	— 8	60	— 8	78	10	83	16	87	40	88	40	89	36	86	28	76	28	66	7	42	—10
Dutchess,	50	—30	47	— 1	61	5	76	24	91	39	96	42	94	47	91	42	91	36	78	31	70	13	43	—22
Erasmus Hall,	53	— 6	54	2	61	4	71	27	85	41	84	46	87	53	84	52	81	40	71	35	69	20	48	4
Fairfield,	53	—21	44	—17	49	— 6	66	10	81	28	84	41	84	45	86	42	78	39	72	44	61	6	44	—26
Farmers' Hall,	49	—30	48	— 5	60	5	70	25	89	38	89	43	88	48	88	45	85	36	76	34	78	14	44	—10
Fredonia,	51	0	47	— 4	62	— 5	74	22	81	34	87	49	85	50	86	50	84	40	79	38	69	12	45	7
Gouverneur,	46	—35	41	—29	53	—13	78	13	84	22	99	38	35	37	92	47	79	22	75	22	62	—17	41	—40
Granville,	48	—31	42	—11	56	— 4	70	16	82	32	92	46	92	50	93	44	88	32	77	26	68	0	46	—22
Hamilton,	56	—34	48	—12	52	—15	76	15	84	24	89	38	85	46	92	33	78	27	74	27	66	5	46	—20
Hartwick,	48	0	48	0	54	0	72	20	86	30	88	42	88	43	82	38	82	28	78	29	74	4	46	1
Hudson,	50	—24	48	— 6	55	4	67	20	80	34	81	47	84	49	84	46	82	30	68	30	68	30	40	—16
Ithaca,	50	—12	58	— 8	62	— 2	78	22	89	32	95	44	96	44	98	40	90	33	86	30	73	8	50	— 5
Johnstown,	40	—30	44	—18	50	— 8	67	23	83	33	86	45	87	48	77	49	83	26	70	22	60	4	48	—18
Kinderhook,	48	—24	48	— 8	59	0	72	27	87	30	88	41	92	45	88	40	87	27	78	26	68	4	38	—17
Kingston,	52	—30	46	— 3	58	10	72	34	90	37	87	44	91	50	90	48	84	32	74	32	63	10	46	—12
Lansingburgh,	46	—28	44	0	54	8	67	23	86	33	84	52	90	59	90	44	85	36	74	30	63	10	42	—11
Lewiston,	50	1	48	— 1	60	4	67	24	80	37	88	47	89	56	90	50	82	40	80	34	66	11	40	— 1
Lowville,	46	—31	45	—23	52	—16	76	10	85	25	93	40	88	46	94	33	82	22	80	24	64	— 2	43	—40
Middlebury,	51	— 7	52	— 8	60	— 7	78	17	85	27	92	40	93	50	89	35	85	30	80	29	78	9	42	— 8
Monroe,	54	— 5	50	— 5	54	0	80	20	86	31	96	42	88	48	92	40	86	32	83	28	69	10	45	— 8

RECAPITULATION AND RESULTS, No. 5, (*Continued.*)

ACADEMIES.	COMPARISON OF THE RANGE IN EACH MONTH.																							
	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.	
	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.
Montgomery,	64	—33	46	— 7	63	3	74	25	94	39	97	44	96	45	74	52	90	31	83	28	68	10	50	— 8
Mount-Pleasant,	52	— 8	52	2	57	5	69	28	88	40	90	48	90	52	85	50	80	38	74	38	70	20	48	— 4
Newburgh,	51	—27	52	— 4	65	3	75	24	92	40	89	48	92	49	88	44	87	35	74	35	70	14	42	—15
North-Salem,	52	—31	51	—12	58	— 7	69	26	91	35	89	42	92	47	98	40	86	28	75	24	74	8	49	—17
Oneida Conference Semina.	44	—26	40	—12	50	—11	75	18	80	32	90	45	86	49	87	32	82	27	76	27	62	7	49	—19
Oneida Institute,	43	—33	46	—12	53	—13	71	11	83	31	90	41	89	43	87	40	86	29	73	28	64	3	39	—18
Onondaga,	49	—18	53	— 6	58	— 5	76	20	84	36	89	43	84	51	87	42	80	32	77	30	66	10	46	— 8
Oxford,	51	—35	51	—13	57	—11	78	9	84	25	92	40	90	42	90	40	85	28	77	31	68	7	44	—14
Oysterbay,	53	— 2	56	4	66	10	74	29	..	..	91	44	92	50	88	52	88	41	78	36	69	19	47	3
Palmyra,	48	— 9	53	— 2	54	— 1	77	19	87	30	93	44	90	45	89	38	85	29	84	33	67	18	50	— 4
Pompey,	55	—17	47	— 5	58	— 3	74	21	81	31	85	42	83	49	82	41	80	30	72	29	70	5	43	—18
Redhook,	47	—28	47	— 8	60	4	81	30	92	33	95	42	98	44	90	41	91	31	82	24	78	10	42	— 8
Rochester,	50	— 4	47	— 7	64	0	78	28	82	40	85	52	87	34	89	50	85	32	73	32	62	10	47	— 4
St. Lawrence,	48	—30	44	—28	57	—12	73	15	83	28	88	45	86	47	90	43	81	24	75	24	64	—10	47	—26
Schenectady,	44	—26	44	— 2	54	2	66	20	85	34	82	50	83	50	84	48	78	34	74	32	62	10	44	—10
Springville,	57	— 8	50	— 4	70	— 7	80	20	80	33	86	40	88	49	82	44	78	38	76	29	67	9	40	— 6
Union,	50	—28	47	—12	57	—22	77	29	80	38	92	50	92	48	92	44	85	32	78	30	65	5	47	—36
Union-Hall,	57	— 3	56	6	57	21	70	26	84	36	82	41	86	47	83	45	80	36	72	28	67	19	48	3
Utica,	49	—26	50	—12	54	— 8	70	15	81	21	85	41	82	47	86	48	82	30	77	30	68	9	43	—16

RECAPITULATION AND RESULTS, No. 6.

Comparative View of the Average or Mean Temperature for each of the last ten years, (so far as reported,) with a General Mean or Average for the whole number of those years.

ACADEMIES.	MEAN TEMPERATURE OF EACH YEAR.										Gen. Mean or Average.
	1826.	1827.	1828.	1829.	1830.	1831.	1832.	1833.	1834.	1835.	
Albany,	51.07	48.62	51.36	48.20	50.65	49.15	48.10	47.62	48.53	46.17	48.94
Auburn,	.....	48.24	49.96	46.36	47.37	.....	46.92	47.80	48.93	46.54	47.76
Bridgewater,	.....	.....	.....	.....	.....	.....	.....	43.85	42.79	41.14	42.59
Buffalo,	.....	.....	.....	.....	.....	46.78	45.60	.....	.....	.....	46.19
Cambridge Washington,	.....	45.51	49.00	45.89	47.92	46.79	45.61	45.05	46.20	43.57	46.17
Canajoharie,	.....	.....	....	.....	46.53	.....	.....	46.48	.....	44.31	45.77
Canandaigua,	.....	.....	50.71	46.22	48.86	46.28	47.16	47.29	46.92	43.68	47.14
Cayuga,	.....	.....	.....	.....	49.47	48.48	48.10	.....	48.08	.....	48.53
Cherry-Valley,	.....	44.01	47.08	44.33	45.17	44.88	44.78	44.55	45.22	43.44	44.83
Clinton,	.....	43.91	51.29	48.14	49.62	48.78	48.00	49.09	49.38	46.60	48.33
Cortland,	.....	.....	.....	.....	.....	.....	45.59	45.68	.....	43.17	44.81
Delaware,	.....	.....	46.89	.....	44.99	.....	.....	.....	.....	.....	45.94
Dutchess,	.....	.....	58.57	51.82	52.73	50.60	57.88	49.93	50.42	48.95	52.61
Erasmus Hall,	53.96	51.63	53.68	50.50	52.53	51.28	51.54	51.83	51.36	49.49	51.78
Farmers' Hall,	.....	.....	.....	.....	.....	.....	.....	.....	47.32	45.79	46.55
Fairfield,	.....	43.18	47.01	.....	.....	44.86	44.88	45.73	.....	42.99	44.77
Fredonia,	.....	.....	.....	....	49.57	47.83	49.23	.....	50.44	47.21	48.85
Franklin,	.....	.....	....	44.61	46.38	.....	.....	.....	.....	.....	45.49
Gouverneur,	.....	....	. ...	.....	.....	43.48	43.66	44.69	45.40	42.25	43.89
Granville,	.....	.....	.....	.....	.....	.....	.....	.....	.....	43.76	43.76
Greenville,	48.05	.....	.....	36.78	.....	.....	.....	.....	.....	.....	42.41
Hamilton,	.....	41.70	47.46	44.48	45.87	45.75	.....	44.99	44.49	43.83	44.82
Hartwick,	46.60	45.40	46.94	45.49	46.68	43.96	45.89	.....	.....	45.39	45.79
Hudson,	.....	41.19	52.84	49.05	.....	51.25	49.25	48.63	47.91	44.62	48.09
Ithaca,	.....	50.00	51.35	....	49.67	.....	.....	48.28	.....	46.31	49.12
Johnstown,	.....	.....	47.89	46.02	.....	46.00	45.90	.....	45.43	42.64	45.64
Kinderhook,	.....	.....	.....	.....	48.24	54.90	46.48	46.55	47.08	44.72	47.99
Kingston,	.....	.....	.....	48.43	51.47	51.06	50.50	51.40	50.10	48.25	50.17
Lansingburgh,	49.68	48.12	51.71	47.70	49.64	47.63	47.36	48.11	48.64	48.10	48.66

RECAPITULATION AND RESULTS, No. 6, (*Continued.*)

ACADEMIES.	MEAN TEMPERATURE OF EACH YEAR.										Gen. Mean or Average.
	1826.	1827.	1828.	1829.	1830.	1831.	1832.	1833.	1834.	1835.	
Lewiston,	.....	.....	.....	.....	.....	49.52	49.29	49.69	50.70	47.36	49.31
Lowville,	.....	43.77	46.95	43.38	44.60	43.97	44.15	44.02	46.03	40.75	44.18
Middlebury,	46.87	46.23	49.62	46.35	47.82	46.35	47.83	48.78	49.08	45.75	47.46
Monroe,	.....	.....	.....	.....	.....	.....	.....	.....	.....	46.56	46.56
Montgomery,	.....	.....	42.18	40.03	52.30	49.46	49.36	49.90	48.16	47.56	47.36
Mount-Pleasant,	.....	.....	.....	.....	.....	48.69	49.33	.....	50.05	48.98	49.26
Newburgh,	.....	.....	52.00	48.66	50.25	.....	50.71	49.96	50.20	48.17	49.99
North-Salem,	.....	.....	.....	50.64	49.96	48.65	48.97	48.08	48.13	46.22	48.66
Oneida Conference Seminary,	.....	.....	.....	.....	45.45	43.54	44.36	44.44	44.97	42.96	44.28
Oneida Institute	.....	.....	.....	.....	.....	.....	.....	.....	45.17	43.76	44.46
Onondaga,	50.71	48.27	50.90	47.81	.....	.....	50.21	47.81	.....	46.84	48.93
Oxford,	.....	....	.....	44.99	*46.55	46.16	.....	44.22	45.83	44.32	45.34
Oysterbay,	.....	.....	.....	.....	.....	.....	.....	.....	51.85	.....	51.85
Palmyra,	.....	.....	.....	.....	.....	.....	.....	....	.....	45.32	45.32
Pompey,	45.97	43.50	47.33	43.38	44.68	43.08	43.40	43.12	.....	42.16	44.06
Redhook,	.....	.....	.....	.....	49.10	49.31	47.86	45.70	48.68	46.74	47.89
Rochester,	.....	.....	.....	.....	49.27	.....	.....	48.18	47.48	47.40	48.08
St. Lawrence,	.....	....	46.01	44.06	44.58	43.48	42.84	40.57	42.76	42.57	43.35
Schenectady,	....	.....	.....	46.77	.....	.....	.....	.....	47.85	45.88	46.83
Springville,	.....	.....	.....	.....	.....	.....	.....	.....	48.90	.....	48.90
Union,	.....	.....	.....	.....	45.94	46.15	.....	45.48	46.52	45.12	45.84
Union-Hall,	52.19	50.95	52.05	48.51	51.05	49.51	49.20	51.84	50.10	46.84	50.92
Utica,	48.73	47.11	50.40	44.50	46.44	45.24	43.99	44.28	44.90	42.59	45.81
Washington,	.....	.....	48.63	44.52	46.02	.....	.....	.....	....	.....	46.39

RECAPITULATION AND RESULTS, No. 7.

Comparative View of the Prevailing Winds for each of the last ten years, (so far as reported,) with the Prevailing Winds for the whole number of those years.

ACADEMIES.	PREVAILING WINDS IN EACH YEAR.										General prevailing wind.
	1826.	1827.	1828.	1829.	1830.	1831.	1832.	1833.	1834.	1835.	
Albany,	S	S	S	S	NW	S	S	S	S	S	South.
Auburn,	....	S	S	S	S	....	S	NW	NW	NW	South.
Bridgewater,	....	....	....	....	....	....	....	W	W	W	West.
Buffalo,	...	...	....	....	....	SW	SW	....	....	....	Southwest.
Cambridge Washington,	....	SW	SW	SW	S	S	S	S	N	N	South.
Canajoharie,	....	....	....	....	....	....	....	W	....	NW	W & NW.
Canandaigua,	....	....	NW	W	W	W	S	S	W	W	West.
Cayuga,	....	S	....	....	S	S	S	.....	S	....	South.
Cherry-Valley,	....	SW	W	W	W	W	W	W	W	W	West.
Clinton,	....	NW	E	NW	NW	NW	NW	NW	NW	NW	Northwest.
Cortland,	....	....	....	....	....	....	S	S	....	NW	South.
Delaware,	....	....	SW	....	....	....	....	....	....	....	Southwest.
Dutchess,	....	...	SW	NW	SW	S	S	SE	SE	SE	Southeast.
Erasmus-Hall,	NW	NW	SW	NW	NW	NW	SW	NW	NW	SW	Northwest.
Farmers' Hall,	. ..	....	....	....	....	....	....	....	SW	SW	Southwest.
Fairfield,	....	NW	E	....	W	NW	NW	NW	....	NW	Northwest.
Fredonia,	....	....	....	....	W	W	SW	....	W	SW	West.
Franklin,	...	NW	NW	NW	W	NW	....	....	....	....	Northwest.
Gouverneur,	....	....	....	....	....	W	SW	SW	SW	SW	Southwest.
Granville,	....	....	....	....	....	....	....	....	N	SW	N & SW
Greenville,	NW	NW	NW	....	....	....	....	....	....	....	Northwest.
Hamilton,	NW	NW	SW	NW	NW	NW	S	NW	SW	SW&NW	Northwest.
Hartwick,	NW	W	S	S	S	S	S	....	.....	S	South.
Hudson,	....	NW	S	N	N	N	SE	SE	SE	S	N & SE.
Ithaca,	....	....	S	....	NW	....	....	S	....	S	South.
Johnstown,	....	W	W	W	W	W	W	....	W	W	West.
Kinderhook,	....	....	....	....	S	S	S	S	N	S	South.
Kingston,	....	....	....	SW	NW	NW	W	NW	NW	SW	Northwest.
Lansingburgh,	S	W	S	S	S	S	S	S	NW	NW	South.

RECAPITULATION AND RESULTS, No. 7, (*Continued.*)

ACADEMIES.	PREVAILING WINDS IN EACH YEAR.										General prevailing wind.
	1826.	1827.	1828.	1829.	1830.	1831.	1832.	1833.	1834.	1835.	
Lewiston,	....	....	....	....	....	SW	S	SW	SW	SW	Southwest.
Lowville,	....	NW	NW	NW	NW	NW	S	N	....	W	Northwest.
Middlebury,	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	Southwest.
Monroe,	....	....	....	....	....	....	....	....	....	S	South.
Montgomery,	....	....	S	S	S	SW	SW	SW	NW	W	S & SW.
Mount-Pleasant,	....	....	....	....	....	NW	NW	....	NW	NW	Northwest.
Newburgh,	....	....	SW	SW	....	....	SW	SW	NE	SW	Southwest.
North-Salem,	....	....	....	NW	NW	NW	NW	NW	NW	W	Northwest.
Oneida Con. Semina.	....	....	....	....	NW	NW	NW	NW	NW	NW	Northwest.
Oneida Institute,	....	....	....	....	....	....	....	....	W	W	West.
Onondaga,	S	S	S	W	....	....	S	W	....	W	South.
Oxford,	....	....	....	W	SW	W	SW	W	W	W	West.
Oysterbay,	....	....	....	....	....	....	....	....	SW	....	Southwest.
Palmyra,	....	....	....	....	....	....	....	....	....	SW	Southwest.
Pompey,	SW	NW	SW	SW	SW	SW	SW	SW	....	W	Southwest.
Redhook,	....	....	....	....	S	S	S	N	N	S	South.
Rochester,	....	....	....	....	W	....	....	W	W	SW	West.
St. Lawrence,	....	SW	NW	SW	SW	SW	SW	SW	SW	SW	Southwest.
Schenectady,	....	W	W	W	....	....	....	....	....	....	West.
Springville,	....	....	....	....	....	....	....	....	....	W	West.
Union,	....	....	....	....	S	W	....	SW	S	S	South.
Union-Hall,	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	Northwest.
Utica,	W	W	W	W	W	W	W	W	W	W	West.
Washington,	....	....	SW	SW	SW	....	....	....	....	....	Southwest.

RECAPITULATION AND RESULTS, No. 8.

Comparative View of the quantity of Rain for each of the last ten years, (so far as reported,) with a General Mean or Average for the whole number of those years.

ACADEMIES.	TOTAL FALL OF RAIN AND SNOW IN EACH YEAR.										Gen. Mean or Average.
	1826.	1827.	1828.	1829.	1830.	1831.	1832.	1833.	1834.	1835.	
Albany,	33.12	49.80	37.66	38.07	41.85	39.52	44.45	41.74	32.45	40.44	39.91
Auburn,	.....	.....	34.91	30.54	37.88	.....	30.87	34.00	24.70	34.33	32.46
Bridgewater,	.....	.....	.....	.....	.....	.....	.....	42.87	40.12	55.96	46.31
Buffalo,	.....	.....	.....	.....	.....	.....	27.27	.....	.....	.....	27.27
Cambridge Washington,	.....	52.01	43.68	39.04	35.10	43.05	46.45	47.51	29.18	35.92	41.32
Canandaigua,	.....	.....	.....	30.20	36.60	38.90	30.04	39.85	36.58	43.85	36.57
Cayuga,	.....	35.59	.....	.....	37.11	36.10	29.06	.....	25.09	.....	32.59
Cherry-Valley,	.....	54.25	34.39	39.93	45.05	49.04	.....	44.01	33.79	34.88	41.91
Clinton,	.....	47.17	30.91	42.56	46.65	38.49	41.82	36.29	38.92	30.55	39.26
Delaware,	.....	.....	28.85	.....	22.55	.....	.....	.....	.....	.....	25.70
Dutchess,	.....	.....	.....	.....	46.36	49.63	47.39	40.52	.....	28.98	42.57
Erasmus Hall,	44.91	48.27	45.14	48.62	53.47	42.52	43.54	46.76	39.48	38.11	45.08
Farmers' Hall,	.....	.....	.....	.....	.....	.....	.....	.....	30.48	25.62	28.05
Fairfield,	.....	.....	45.51	.....	.....	23.73	32.22	.....	.....	36.17	34.40
Fredonia,	.....	.....	.....	.....	33.93	36.69	41.03	.....	.....	40.96	38.15
Franklin,	.....	.....	25.86	26.16	36.15	.....	.....	.....	.....	.....	29.39
Gouverneur,	.....	.....	.....	.....	.....	.....	.....	33.80	26.66	46.16	35.54
Granville,	.....	.....	.....	.....	.....	.....	.....	.....	24.75	28.90	26.82
Greenville,	30.69	45.06	30.84	.....	.....	.....	.....	.....	.....	.....	35.53
Hamilton,	.....	43.44	34.18	33.26	42.71	35.79	35.38	43.20	32.50	.....	37.55
Hartwick,	42.35	53.43	32.67	40.83	41.59	44.64	38.43	.....	.....	30.48	40.55
Hudson,	.....	39.87	43.25	33.47	39.77	44.65	45.57	42.52	30.49	34.30	39.32
Ithaca,	.....	.....	24.45	.....	35.61	.....	.....	26.64	.....	.....	28.90
Johnstown,	.....	.....	40.39	36.59	.....	36.88	32.73	.....	35.14	41.01	37.12
Kinderhook,	.....	.....	.....	.....	36.92	42.82	53.46	39.86	25.95	37.00	39.33
Kingston,	.....	.....	.....	38.99	40.15	45.35	38.25	44.04	34.85	33.94	39.36
Lansingburgh,	33.00	46.81	37.91	38.34	40.67	37.38	45.83	44.49	35.74	22.55	38.27
Lewiston,	.....	.....	.....	.....	.....	25.35	21.45	20.73	22.55	25.68	23.15
Lowville,	.....	32.87	35.48	28.07	36.66	39.79	29.19	35.08	.....	39.12	34.52

RECAPITULATION AND RESULTS, No. 8, (*Continued.*)

ACADEMIES.	TOTAL FALL OF RAIN AND SNOW IN EACH YEAR.										Gen. Mean or Average.
	1826.	1827.	1828.	1829.	1830.	1831.	1832.	1833.	1834.	1835.	
Middlebury,	23.96	30.02	38.42	29.80	38.50	29.83	28.58	30.67	27.44	34.15	31.13
Monroe,	.....	.....	....	.....	.....	.....	.....	.....	.....	30.64	30.64
Montgomery,	.....	.....	40.36	31.45	40.99	44.62	40.54	36.34	33.53	26.33	36.77
Mount-Pleasant,	.....	.....	.....	.....	.....	42.36	48.86	.....	39.17	34.50	41.22
Newburgh,	.....	.....	43.30	32.54	34.38	.....	43.16	41.17	29.23	25.04	35.54
North-Salem,	.....	.....	.....	.....	43.37	42.95	40.93	43.26	33.50	35.49	39.91
Oneida Conference Seminary,	.....	.....	.....	.....	41.59	37.29	37.49	37.57	33.44	34.35	36.95
Oneida Institute	.....	.....	.....	.....	.....	.....	.....	.....	25.48	25.00	25.24
Onondaga,	26.67	38.09	35.79	27.10	.....	.....	28.20	26.79	.....	32.43	30.72
Oxford,	.....	.....	.....	36.71	33.79	30.63	31.00	32.69	29.54	38.66	33.28
Oysterbay,	.....	.....	.....	.....	.....	.....	.....	.....	42.29	.....	42.29
Palmyra,	.....	.....	.....	.....	.....	.....	.....	.....	17.30	33.80	25.55
Pompey,	.....	39.13	33.47	27.23	30.06	.....	26.44	30.14	.....	33.27	31.39
Redhook,	.....	.....	.....	.....	43.00	48.23	38.54	25.92	....	.....	38.92
Rochester,	.....	.....	.....	.....	34.94	.....	.....	.....	17.34	28.60	27.16
St. Lawrence,	.....	.....	35.67	27.71	.....	30.36	22.11	39.27	25.20	29.68	30.00
Schenectady,	.....	.....	.....	34.85	.....	.....	.....	.....	.....	35.67	35.26
Springville,	.....	....	.....	.....	.....	....	.....	.....	36.23	38.66	37.44
Union,	.....	.....	.....	.....	26.09	32.85	.....	25.82	19.04	30.51	26.86
Union-Hall,	55.66	51.14	48.91	45.83	43.32	37.75	38.25	36.67	34.06	28.78	42.03
Utica,	36.69	47.87	36.57	36.16	46.19	37.85	49.90	37.79	33.52	38.61	40.11

TABLE *of the periods when the Hudson River opened and closed, at Albany, so far as the same can be now ascertained.*

Winters.	Riv. closed or obst'd by ice.			River open or free of ice.			No. days closed.
1785—86				*March	23,	1786	
1789—90	February	3,	1790				
1790—91	December	8,	1790				
1791—92	December	8,	1791				
1792—93	December	12,	1792				
1793—94	December	26,	1793	*March	17,	1794	81 days.
1794—95	January	12,	1795				
1795—96	January	23,	1796				
1796—97	November	28,	1796				
1797—98	November	26,	1797				
1798—99	November	23,	1798				
1799—1800	January	6,	1800				
1800—01	January	3,	1801				
1801—02	February	3,	1802				
1802—03	December	16,	1802				
1803—04	January	12,	1804				
1804—05	December	13,	1804				
1805—06	January	9,	1806	February	23,	1806	45 days.
1806—07	December	11,	1806				
1807—08	January	4,	1808				
1808—09	December	9,	1808				
1809—10	January	19,	1810				
1810—11	December	14,	1810				
1811—12	December	20,	1811				
1812—13	December	21,	1812	*March	13,	1813	83 days.
1813—14	December	22,	1813				
1814—15	December	10,	1814				
1815—16	December	2,	1815				
1816—17	December	18,	1816				
‡1817—18	December	7,	1817	March	25,	1818	108 days.
1818—19	December	14,	1818	April	3,	1819	110 days.
1819—20	December	13,	1819	March	25,	1820	102 days.
§1820—21	November	13,	1820	March	15,	1821	123 days.
1821—22	December	13,	1821	March	15,	1822	92 days.
1822—23	December	24,	1822	March	24,	1823	90 days.
‖1823—24	December	16,	1823	March	3,	1824	78 days.
1824—25	January	5,	1825	March	6,	1825	60 days.
1825—26	December	13,	1825	*February	26,	1826	75 days.
1826—27	December	24,	1826	*March	20,	1827	86 days.
¶1827—28	*November	25,	1827	*February	8,	1828	About 50 days.
1828—29	*December	23,	1828	*April	1,	1829	100 days.
1829—30	*January	11,	1830	*March	15,	1830	63 days.
**1830—31	*December	23,	1830	*March	15,	1831	82 days.
1831—32	*December	5,	1831	*March	25,	1832	111 days.
††1832—33	*December	21,	1832	*March	21,	1833	83 days.
1833—34	*December	13,	1833	*February	24,	1834	73 days.
‡‡1834—35	*December	15,	1834	*March	25,	1835	100 days.
1835—36	*November	30,	1835				

‡ This winter was long and intensly cold. On the 3d of March, 1818, the ice moved in a body downwards for some distance, and there remained stationary. The river was not clear until March 25th.

§ The river closed on the 13th, opened on the 20th, and finally closed Dec. 1. This was one of the four winters during a century, in which the Hudson between Powles' Hook and New-York was crossed on the ice. The other three being 1740-41, 1764-65, and 1779-80.

‖ Jan. 11, 1824. The river was clear of ice, and remained so for several days.

¶ The river opened and closed repeatedly during this winter. Dec. 21 it closed a second time.

** Opened in consequence of heavy rains, and closed again on the 10th Jan. 1831.

†† Opened again Jan. 3; closed again Jan. 11.

‡‡ March 17. River open opposite to the city. March 18. Steam-boat John Jay came to Van Wie's Point. Ice at the Overslaugh.

MEM.—All those marked thus * are derived from authentic records or personal observation.

T. R. B.

MISCELLANEOUS OBSERVATIONS, No. 1.

(Progress of Vegetation.)

First thunder storm.—April 2. Auburn; April 2, Bridgewater, April 5, Cambridge Washington; April 5, Cherry-Valley; April 2, Cortland; April 2, Dutchess; January 30, Erasmus Hall; January 30, Fairfield; March 15, Fredonia; April 2, Gouverneur; April 2, Hamilton; April 2, Hartwick; April 5, Johnstown; March 22, Kinderhook; April 2, Kingston; April 19, Lewiston; April 2, Lowville; April 2, Middlebury; March 22, Montgomery; January 30, Mount-Pleasant; January 30, Newburgh; January 30, North Salem; April 1, Oneida Institute; April 5, Onondaga; January 30, Oxford; January 30, Oysterbay; April 2, Pompey; April 4, Redhook; April 1, Rochester; April 2, St. Lawrence; January 30, Union-Hall; January 31, Utica; April 2, Oneida Conference; April 5, Albany.

Robins first seen.—March 15, Auburn; April 2, Cambridge Washington; March 16, Bridgewater; March 17, Clinton; March 16, Cortland; March 27, Fairfield; March 28, Gouverneur; March 23, Hamilton; March 16, Kinderhook; March 22, Lewiston; March 31, Lowville; April 2, Mount-Pleasant; March 25, North Salem; March 28, Palmyra; April 3, Pompey; April 1, St. Lawrence; April 1, Union; March 27, Utica; March 20, Oneida Conference; March 28, Onondaga; March 15, Oxford; March 27, Oneida Institute.

Blue birds first seen.—March 31, Auburn; March 29, Bridgewater; March 20, Clinton; March 20, Cortland; March 14, Erasmus Hall; March 28, Fairfield; March 23, Hamilton; March 15, Kinderhook; March 27, Montgomery; March 15, North Salem; March 29, Oneida Institute; March 25, Oxford; March 15, Union-Hall; March 26, Utica.

Grasshoppers seen.—March 14, Erasmus Hall.

Frogs first heard.—April 11, Auburn; April 3, Bridgewater; March 21, Erasmus Hall; April 16, Fairfield; April 8, Hamilton; April 19, Johnstown; April 10, Kinderhook; March 28, Mount-Pleasant; March 28, North Salem; April 3, Oneida Institute; March 31, Onondaga; April 4, Oxford; April 9, Palmyra; April 9, Pompey; April 10, St. Lawrence; March 16, Union-Hall; April 3, Utica; April 9, Oneida Conference.

Pigeons seen.—April 2, Bridgewater; April 2, Onondaga; April 10, Utica.

Barn swallows first seen.—May 3, Bridgewater; May 22, Cher-

ry-Valley; April 19, Clinton; May 3, Delaware; May 5, Farmers Hall; May 8, Gouverneur; May 5, Hamilton; May 1, Hudson; May 9, Johnstown; May 6, Kinderhook; April 30, Lansingburgh; April 15, Lewiston; May 2, Montgomery; May 8, Mount-Pleasant; April 26, North Salem; April 29, Onondaga; April 6, Oxford; May 1, Palmyra; April 27, Pompey; May 1, Oneida Conference.

Martins first seen.—May 1, Auburn; May 3, Bridgewater; May 5, Cortland; May 9, Johnstown; May 11, North Salem.

Currants in blossom.—May 19, Cambridge Washington; May 18, Bridgewater; May 25, Cherry-Valley; May 15, Clinton; May 11, Cortland; May 1, Farmers' Hall; May 14, Hamilton, May 18, Johnstown; May 10, Kinderhook; May 7, Kingston; May 2, Mount-Pleasant; May 16, Oneida Institute; May 14, Oxford; May 9, Palmyra; May 6, Pompey; May 9, Onondaga; May 19. St. Lawrence; May 2, Union-Hall; May 16, Utica; May 14, Oneida Conference.

Apples in blossom.—May 24, Cambridge Washington; May 29, Bridgewater; May 23, Canajoharie; May 15, Canandaigua; May 31, Cherry-Valley; May 31, Clinton; May 27, Cortland; May 20, (eight days later than usual,) Farmers' Hall; May 20, Fredonia; May 26, Hamilton; May 19, Hudson; May 26, Johnstown; May 20, Kinderhook; May 18, Kingston; May 6, Lansingburgh; May 25, Lowville; May 17, Montgomery; May 13, Mount-Pleasant; May 14, Newburgh; May 19, North Salem; May 25, Oneida Institute; May 25, Oxford; May 19, Palmyra; May 19, Redhook; May 21, Onondaga; June 1, St. Lawrence; May 22, Union; May 20, Union Hall; May 26, Utica; May 27, Oneida Conference.

Strawberries in blossom.—May 10, Bridgewater; May 8, Fredonia; May 5, Lewiston; May 14, Onondaga; May 20, Oxford.

Peach tree in blossom.—April 10, Auburn; May 9, Canandaigua; May 17, Clinton; May 5, Fredonia; May 5, Ithaca; May 11, Kingston; April 26, Lewiston; May 11, Middlebury; May 5, Mount-Pleasant; May 19, Onondaga; May 6, Palmyra; May 10, Redhook; May 7, Union-Hall.

Quince in blossom.—May 20, Canandaigua; May 24, Hudson; May 26, Onondaga.

Claytonia Virginica in blossom.—April 20, Bridgewater; May 9, Palmyra.

Hepatica Triloba in blossom.—April 20, Bridgewater; April 10, Cortland; April 10, Ithaca; April 22, Onondaga; April 10, Palmyra;

Whippoorwill heard.—April 27, Bridgewater; May 13, Farmers' Hall; June 6, Hudson.

Daffodils in blossom.—April 28, Bridgewater; May 3, Cortland; April 25, Fredonia; May 4, Hamilton; April 15, Onondaga; May 2, Oxford; May 1, Utica.

Shad bush in blossom.—May 19, Bridgewater; May 18, Cortland; May 1, Farmers' Hall; May 13, Hamilton; May 7, Kinderhook; May 9, Middlebury; May 7, Montgomery; May 1, Newburgh; May 3, North Salem; May 5, Palmyra.

Plums in blossom.—May 16, Bridgewater; May 21, Cherry-Valley; May 19, Cortland; May 15, Hamilton; May 15, Hartwick; May 11, Hudson; May 4, Ithaca; May 16, Kinderhook; May 11, Lowville; May 5, Mount-Pleasant; May 11, Middlebury; May 14, Oneida Institute; May 13, Oxford; May 10, Palmyra; May 16, Pompey; May 8, Redhook; May 9, Onondaga; May 20, St. Lawrence; May 13, Union; May 14, Utica.

Cherries in Blossom.—May 24, Bridgewater; May 20, Canajoharie; May 29, Cherry-Valley; May 26, Clinton; May 19, Cortland; May 12, Farmers' Hall; May 15, Fredonia; May 25, Hamilton; May 7, Hudson; May 26, Johnstown; May 18, Kinderhook; May 7, Mount-Pleasant; May 9, North Salem; May 17, Oneida Institute; May 12, Onondaga; May 22, Oxford; May 16, Pompey; May 8, Redhook; May 5, Union Hall; May 17, Utica; May 23, Oneida Conference.

Lilacs in blossom.—May 29, Bridgewater, May 31, Cherry-Valley; May 19, Farmers' Hall; May 29, Hamilton; May 19, Hudson; May 5, Lewiston; May 20, Newburgh; May 27, Oxford; May 24, Pompey; May 19, Union-Hall; May 26, Utica; May 28, Oneida Conference.

Fire flies first seen.—June 10, Canajoharie; June16, Cherry-Valley; May 25, North Salem; June 17, Oneida Institute; June 5, Oxford; June 19, St. Lawrence; June 17, Utica; June 26, Oneida Conference.

Strawberries ripe.—June 20, Bridgewater; June 9, Clinton; June 17, Cortland; May 29, Erasmus Hall; June 10, Fredonia; June 7, Hudson; June 8, Kingston; June 10, Oneida Institute; June 14, Oxford; June 15, Pompey; June 13, Redhook; June 16, St. Lawrence; June 11, Utica; June 23, Oneida Conference.

Peas in blossom.—June 25, Canajoharie; June 5, Fredonia; May 26, Ithaca; June 8, Lowville; May 20, Oneida Institute; June 6, Redhook.

Cherries ripe.—July 13, Clinton; June 20, Fredonia; June 23, Hudson; June 20, Lewiston; July 9, Oneida Conference.

Green peas.—July 4, Bridgewater; July 14, Farmers' Hall; June 25, Lewiston; June 15, Oneida Institute; June 16, Oxford; June 15, Utica; July 8, Oneida Conference.

Currants ripe.—July 9, Bridgewater; July 15, Clinton; July 12, Hamilton.

Hay harvest commenced.—July 20, Bridgewater; July 5, Canandaigua; July 9, Cortland; July 15, Farmer's Hall; July 17, Kingston; June 22, North Salem; July 16, Onondaga; July 9, Palmyra; July 16, St. Lawrence; July 10, Utica; July 22, Oneida Conference.

New potatoes.—July 4, Farmers' Hall; July 6, Hudson; July 10, Utica.

Corn in the silk.—July 21, Bridgewater; July 18, Canajoharie; July 20, Hamilton.

Rye harvest commenced.—July 27, Canajoharie; August 1, Cortland; July 14, Kingston; July 13, North Salem; July 13, Union Hall.

Wheat harvest commenced.—July 22, Auburn; August 3, Bridge-

water; July 30, Canajoharie; July 24, Canandaigua; July 24, Clinton; August 5, Cortland; July 24, Farmers' Hall; July 30, Middlebury; July 19, North Salem; July 26, Oneida Institute; July 23, Onondaga; July 24, Palmyra; July 22, Pompey; August 5, St. Lawrence; August 12, Union; July 17, Union Hall; August 3, Oneida Conference.

Green corn.—August 13, Cortland; July 29, Hudson; August 2, Rochester.

Apples ripe.—August 13, Hudson.

Indian summer.—October 17, Bridgewater; October 15, Lewiston.

MISCELLANEOUS OBSERVATIONS, No. 2.

Atmospherical Phenomena, &c.

AURORA BOREALIS noticed.

January 4, Very brilliant this evening, arch entire, 20 degrees from the horizon, no shooting, stationary from half-past nine until eleven, Auburn.
January 5, Oneida Conference.
January 18, Johnstown, Oneida Conference.
January 29, Clinton, very brilliant, Montgomery.
January 31, St. Lawrence.
February 25, Utica, at 10 P. M., Albany.
February 26, Utica.
February 27, Johnstown.
March 1, Aurora borealis in the northeast, Cortland, Kinderhook, Oneida Conference.
March 30, Slight, Utica.
June 21, Utica; at fifteen minutes past 10 P. M., Albany.
June 28, Johnstown.
July 22, at 11 P. M. Albany.
July 29, Bridgewater; a single beam from the horizon, a few degrees west of north, extending about 30° towards the zenith, Albany.
August 19, Beautiful aurora borealis in the evening, Ithaca, St. Lawrence, Utica.
September 4, unusually vivid, Bridgewater, Hudson; very brilliant, St. Lawrence; bright, reaching at times nearly to the zenith, Oneida Conference.
September 7, Albany.
September 9, at 9 h. 45′ P. M., a faint white arch in the northern hemisphere, which moved towards, and passed the zenith about 10 P. M., Albany.
September 22, Brilliant aurora at 11 h. 30′, an arch near northern horizon, Albany.
September 24, Johnstown, Utica; 11 h. 15′, Albany.
September 26, Utica.
October 27, Bridgewater.
November 17. At 5 h. 20′ P. M., a mass of red light was seen in east, which in a few minutes extended across the sky in the form of an arch, of a bright red color. About 5 h. 35′, a white arch was formed nearer the zenith, and at the same time, one below the

first. At 6 h. 30′, beams of white and red converged at a point south of the zenith. At 10 h. 45′, a zone of red light extended across the sky, nearly east and west, and streamers of red, yellow and blue, from the whole horizon, met at a point about 15° south and east of the zenith, Albany.

This evening a remarkably beautiful and diversified display of the aurora borealis was observed. It began at 15 minutes past 5 o'clock, by shooting up broad columns of dense crimson light in the direction of east and west of north, which as the evening advanced, were found to be between the Pleiades and Aries in the east, and between the stars Aquila and Lyra in the west. The intermediate space in the north was illuminated by a white and softer light, resting on a dark ground work lying on the horizon. The columns of crimson light, in nearly the same relative position, were rapidly appearing and disappearing, or succeeded by others, sometimes of a pale and sometimes of a deeper hue, and often intermingled with other colors. At 8 o'clock, the columns in the west were the most brilliant conceivable, more intense in color, and extending very high in the direction of the magnetic meridian. From 9 to 11, the light of the column somewhat diminished, but the glowing silvery brightness of the north was much increased, Utica.

On the 17th, a most brilliant aurora borealis illumined the northern hemisphere; it commenced at about 6 o'clock in the evening, with a broad streak of light at about W. N. W. a little above the horizon; at 7 o'clock it had risen to the height of about 45° and spread to the north and eastward as far as E. N. E. At 9 o'clock, and from that time till about half after 10, the whole of the atmosphere from W. N. W. to nearly E. was illuminated by a reddish light, the rays of which were sufficient to illuminate objects at as great a distance as they could be when the moon is at her quarter. This continued until about half past 10, when the whole assumed a different aspect; all over head and considerably to the south of the zenith was of a bright crimson, and coruscations from N. to N. E. in pyramidal or spiral forms, based a little above the horizon, began to shoot up in rapid succession, all tending towards and nearly reaching a point a little to southward and eastward of the zenith, displaying all the prismatic colors brighter than those of the rainbow. At about half past 11 o'clock the whole disappeared.

During the whole time of the appearance of the phenomena, the atmosphere was very serene, and the stars shone with unusual splendor.

It appeared again on the 18th, but exhibited nothing more than a uniform pale light from N. W. to N. E. about 15° above the horizon.—Clinton Academy.

The appearance of the aurora borealis this evening was very splendid and singular. About 6 o'clock the sky in the N. E. presented an appearance similar to what might be expected if the immense forest in that direction had been in flames. Presently the whole northern portion of the heavens presented this same red appearance. And in a short time there were seen running up from the northern horizon, white bands waving, suddenly appearing and disappearing. A faint dark colored bow passed from the N. E. to the N. W. passing nearly through the zenith, and no clouds were to be seen, but stars were distinguished almost to the horizon. The heavens were evidently darker in this bow than without it: noticed the last time about 10 o'clock, slight red appearance, still continued in N. E.—Fairfield.

Exceedingly brilliant, and of an unusual appearance. Zones of light of the color of flame, overarched the heavens. Presently they gave way to a mellow light, like that of the dawn, and this in turn was succeeded by flashes of scarlet colored light, shooting up from different parts of the northern horizon. Thus the scene continued to vary from 6 P. M. until a few minutes past 11 o'clock, when clouds overspread the sky.—St. Lawrence.

Extending from the northwest round to the northeast, it presented a very interesting and singular appearance from half past 5 to 8 P. M., streaming up sometimes with great brilliancy, and at other times becoming almost imperceptible; varying also constantly in color in different parts of the heavens from a very clear white light to a deep red, the same column appearing alternately white and red, twice in succession in different parts of the heavens, from the horizon to the zenith. The different columns finally converged to a general focus near the zenith, and spreading off again to the south and west, presented the appearance of a white luminous cloud, and thus gradually faded away at about 8. The lights, however, in the northwest and northeast to the distance of about 30° remained constantly of a deep red color.—Oneida Conference.

Very brilliant.—Cambridge Washington. Aurora borealis of a singular red appearance, extending to within 30° of the southern horizon.—Bridgewater.

Half round the horizon.—Cortland. Very luminous.—Dutchess. Splendid, of a rose color; arch in the south.—Hartwick, Kinderhook. Very brilliant and extensive.—Middlebury, Newburgh, North-Salem. Brilliant; began early in the evening, with a dusky red appearance in the northeast.—Oxford. Uncommonly brilliant.—Oysterbay. Brilliant from 8 to 11 in the evening.—Pompey, Redhook. Splendid.—Union-Hall.

November 18. At 4 A. M. a very bright auroral light at northwest. At 9 h. 35 m. P. M. a low arch in the north, and numerous beams from the northern horizon, extending about 45° towards the zenith.—Albany.

The aurora appeared again this evening, but not in a columnar form. The whole north was splendidly lighted with a white and silvery light, not diversified by crimson or other colors.—Utica.

Very brilliant.—Auburn, Cambridge Washington, Bridgewater. Low in the north.—Cortland, Johnstown, Kinderhook. Very brilliant and beautiful. Streams of light pink, white and lead colors shooting up from the horizon in the north, northeast and east, resembling the glare of an extensive conflagration.—Lewiston. Came up in bright waves.—Redhook.

November 19. Johnstown.

December 10. Faint.—Pompey.

HALOES, &c.

January 6. Two parhelia.—Cambridge Washington.

January 7. Part of a solar halo and two parhelia were visible during the greater part of the morning.—Albany. Two parhelia.—Cambridge Washington. Two bright spots appear in a large circle about the sun at 8 A. M. and continue about two hours.—Montgomery.

January 9. Lunar halo.—Bridgewater. Bright and well defined lunar halo.—Onondaga. Bright lunar halo.—Utica.

January 12. Very large circle round the moon.—Kinderhook. Very bright lunar halo.—Utica, Oneida Conference.

January 13. Circle round the moon.—Johnstown.

January 29. Halo round the sun.—Oysterbay.

February 1. Solar halo.—Oneida Conference,

February 9. Lunar halo.—Cortland.

February 11. Bright lunar halo.—Utica.

February 12. Lunar halo.—Bridgewater, Johnstown. A small circle observed in the evening around the moon, exhibiting dis-

tinctly the colors of the rainbow.—Newburgh. Lunar halo.—Oneida Conference.
February 14. Lunar halo.—Bridgewater, Oneida Conference.
March 8. Lunar halo.—Utica.
March 18. Solar halo.—Bridgewater.
March 20. Solar halo.—Bridgewater.
March 25. Solar halo.—Bridgewater.
March 26. Solar halo.—Bridgewater.
April 3. Solar halo.—Bridgewater
May 8. Circle round the moon.—Kinderhook.
June 3. A most beautiful halo round the moon.—Kinderhook.
June 10. This evening at 20 minutes past 9, a rainbow was visible in the northwest, the moon being about an hour high.—Oysterbay.
June 23. Solar halo.—Bridgewater.
September 4. Solar circle.—Bridgewater.
September 5. Solar circle.—Bridgewater.
October 14. Solar halo.—Bridgewater.
October 29. Lunar halo.—Utica.
December 3. Lunar halo.—Oneida Conference.

METEORS.

January 21. At fifteen minutes before eleven this evening, a bright meteor of the apparent size of a twelve pound ball, passed over this city, in a direction from northwest to southeast, accompanied with a sharp report, much resembling the discharge of a cannon. The night being dark, the train of the meteor was brilliant and splendid. It exploded near the zenith, and disappeared before reaching the horizon.—Utica.
November 14. A meteor of a brilliant white light, passed at 6 A. M. from the S. S. E. towards the east, at an altitude of about 45°.—Oneida Conference.
November 18. About 41 minutes past 10 P. M. a very large meteor passed near the zenith, in a westerly direction.—Albany.

WEATHER.

April 5. Severe thunder, with a heavy fall of snow, at 3 P. M.—Cherry-Valley. About 3 P. M. an appearance of rain, with thunder, when it commenced snowing fast, so that the earth was soon covered. Thermometer at this time standing at 38. The first thunder snow storm I ever recollect of witnessing.—Cortland.
April 28. Snow, A. M. Hail and rain, P. M. Earth worms lay dead on the snow in considerable number early this morning, in the Academy park.—Albany.
June 11. At half-past four P. M. came on a terrible thunder shower of rain and hail. Some of the hailstones as large as filberts. It broke about 2,000 panes of glass in the village.—Auburn.
June 19. About 4 P. M. a hurricane passed over a part of the village, uprooting trees, unroofing houses, &c. in its course. It

passed from the southwest to northeast, and was not over one-fourth of a mile in breadth.—Kinderhook.

The spring was unusually cold and backward. Vegetation nearly two weeks later than usual, particularly in the blossoming of fruit trees, and the leafing of the forest trees. During the summer, however, the crops of hay, wheat, oats, and maize, were brought forward in great abundance, and with few exceptions, in full maturity. Summer field fruits were produced in great profusion, but not as richly flavored as usual. Autumnal fruits, particularly apples and pears, were unusually plentiful, of excellent quality and well ripened. The temperature of the summer, although on an average rather low, was more uniform than usual, particularly during the three summer months. From the first of July, the season was remarkably free from violent storms, of thunder and lightning and wind, which in some seasons prevail in this valley. A more general prevalence, than formerly, of southerly winds, was also remarked during the latter part of summer, and the early part of autumn.

August 4. This morning an unusually severe frost. It was white, and so abundant as to be easily collected by scraping with the hand on bridges and boards and fences. In the country around Utica, particularly at Trenton, many fields of maize, potatoes, and buckwheat were entirely destroyed. In the Mohawk valley the frost was less severe, by reason of a dense fog, yet some grain and many garden vegetables and plants were much injured. In the neighborhood of Trenton, the greatest severity was observed on sandy lands adjacent to marshes. On clay lands the injury was less.

Indian summer.—The season of autumn usually denominated "Indian summer," continued longer, and was exhibited in higher perfection, with more of the characteristic features of a soft and delicious atmosphere and variegated autumnal scenery, so peculiar to this season, than has for many years before been observed in this neighborhood.

The winter commenced suddenly, with uncommon severity; the cold was intense, the ground suddenly closed with the frost, and has continued frozen through the winter without thawing, an incident never found on record before in this portion of the country. The canal navigation has been entirely suspended since the first severe weather began. Heretofore, it has always been resumed, at intervals, for several days and weeks after it has been once frozen. On the 4th of January, the thermometer, at 6 o'clock in the morning and at sunrise, stood at twenty-six degrees below zero, indicating a greater degree of cold than has ever before been registered in this city. It is worthy of remark, that it was reported in our newspapers, and from thence copied into several of our periodical journals of science, that the thermometer, in this city on that morning, sunk to thirty-four and thirty-seven degrees below zero. This was not the fact, as indicated by the thermometer furnished by the Regents, and by which, under the same exposure, without having been moved, all

our observations have been made, as returned in our reports for eight or nine years. Another thermometer, made by the same artist, kept in a different part of the city, indicated precisely the same degree as our own. Observations made by these two thermometers, for several years past, have seldom varied a single degree.

During the season, which immediately followed, the frost was uncommonly severe. Many substantial brick buildings were badly cracked and injured. The pipes for conveying water, which had been laid under Fayette-street, three feet and four inches below the surface, made of cast iron, three-eights of an inch in thickness, were burst by the frost. On the 10th of May, while digging a cellar on the upper part of Genesee-street, the workmen found the earth frozen into solid masses, large and compact, at the depth of five feet below the surface. It was found, on the opening of spring, that many plum and cherry trees, as well as ornamental trees and shrubbery, had been killed by the frost.—Utica.

RIVER HUDSON.

February 1. River open this day to the Overslaugh; closed again about the 5th. March 17, river open opposite the city. March 18, steam-boat John Jay came to Van Wie's point. March 25, first steam-boat at the wharf, Albany. November 30, river closed.—Albany.

November 25. River closed.—Lansingburgh.

November 30. River frozen.—Hudson.

March 14. Hudson clear of ice at Kingston landing. March 17, first steam-boat arrived from New-York.—Kingston.

March 13. River opened.—Poughkeepsie.

December 16. River frozen. December 21, ice broken up, and boats arrived daily during the rest of the month.—Poughkeepsie.

January 30. Ice left the river and bay.—Mount-Pleasant.

January 3. River closed, Newburgh. January 27, ice broken up, Newburgh. February 5, river closed, Newburgh. February 24, ice broken up, Newburgh. March 1, river closed the third time off Newburgh, but open at the ferry. March 13, ice broken up, Newburgh. December 17, river closed, Newburgh. December 20, river open.—Newburgh.

GREAT WESTERN CANAL.

April 15. Boats on the canal, Utica.—Oneida Institute.

November 25. Canal navigation interrupted by ice, Utica. November 27, canal navigation closed.—Utica.

LAKE LINCKLAEN.

April 12. Lake free from ice.—Cazenovia, Oneida Conference.

TEMPERATURE OF WELLS.

Temperature of a well about 16 feet deep.

January 7,	46 external air, 1°
February 10,	46.5
March 9,	48
April 8,	48
May 15,	47
June 11,	47
July 8,	47.5
August 7,	48.5
September 9,	50
October 10,	50
November 13,	50
December 14,	46.5

I am unable to account for the fact, that the temperature was greater in the months of March and April, than in May, June and July. The error, if any, in the observation, could not, I think, have exceeded half a degree. It is my intention to continue the observations on this subject another year.—Onondaga.

CRYSTALIZATION OF WATER BY FREEZING.

February 27, 28. During the present cold weather, two of our glass receivers (gallon) were left in a tub of water, one filled with water, and standing in the same, so as to have the upper end of the receiver about half an inch above the surface of the water; the other about half filled with oxygen and placed upon some bricks, so that the water rose in the receiver about 4 inches above the surface of that in the tub. When discovered, the ice in the tub was about half or three-fourths of an inch thick. Upon carefully breaking the ice in the tub and taking out the receivers, the ice in the same was found to be very curiously formed and ornamented within. In the latter receiver there was formed a cup of ice extending from the gas to the surface of the water in the tub. The inner surface of this cup was covered with curious formations, from ¼ to ½ of an inch long, and from ¼ to ⅛ of an inch wide, resembling very accurately the leaves and leaflets of some of the various species of *fern* or *brake*, forming almost every possible angle with the surface to which they were attached. They were exceedingly delicate, accurately *pectinate*, *pinnatifid*, and some doubly *pinnatifid*, *acute*, *obtuse*, *lanceolate*, obtusely *serrate*, &c. as if Jack Frost had really been studying botany and had come hither to exhibit the result of his *summer* excursions. The solid part of this ice-cup contained the lineaments of similar formations, was very porous; pores varying from a point or speck to a line, &c. In the other receiver, the ice which was confined to the upper end of the vessel within, consisted of a very different kind of formations, attached to the surface of the vessel in a direction nearly perpendicular to the same. They

resembled *furrowed* portions of the blades of grass, or a number of small needles cemented together, about an inch in length, and from $\frac{3}{1}\frac{}{0}$ to $\frac{4}{1}\frac{}{0}$ of an inch in breadth, straight, acute, &c. I do not know that this is any thing novel to others, but it was both novel and interesting to me. Does it not go to show that ice is a crystalization of water by freezing?—Onondaga.

TABLE, Showing the comparative results obtained by the Common and Conical Rain Gages.

Academies.		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Albany,	Common,	.....	.....	.....	4.54	2.71	6.48	5,39	5.34	1·28	2.22		
	Conical,	.....	.....	.....	4.35	2.43	5·91	4.50	4.35	1.00	2.01		
Bridgewater,	Common,	.....	5.01	4.96	11.31	2.49	8.69	4.70	4.38	1.31	5.15	2.20	1.66
	Conical,	.....	4.95	4.95	11.31	2.41	8.43	4.50	4 03	1.23	4.69	1.81	1.39
Clinton,	Common,	2.45	1.63	4.22	5.69	1.79	1.68	1.39	2.93	0.86	2.34	2.79	2.78
	Conical,	2.29	1.40	3.48	4.89	1.52	1 40	1.17	2.54	0.76	1.98	2.25	2.34
Fairfield,	Common,	.....	.....	.....	.....	1.10	6.38	4.65	6.79	3.01	4.63	1.42	0.81
	Conical,	.....	.....	.....	.....	1.22	6.42	4.51	6.33	2.50	4.28	1.31	0.80
Johnstown,	Common,	.....	.....	.....	.....	1.95	8.04	4.71	5.95	0.71	2.11	3.46	
	Conical,	.....	.....	.....	.....	1.84	7.68	4.52	5.83	0.71	2.10	1.95	
Lansingburgh,	Common,	.....	.....	.....	1.92	1.86	4.83	2.10	4.10	0.95	1.96		
	Conical,	.....	.....	.....	2.17	1.74	4.10	2.00	3.78	0.92	1.77		
Lowville,	Common,	.....	.....	.....	.....	1.64	6.75	4.51	5.12	1.48	5.49		
	Conical,	.....	.....	.....	.....	1.71	7.04	4.84	5.38	1.63	5.97		
Onondaga,	Common,	.....	.....	.....	4.28	1.07	6.53	2.71	5.69	1.96	3.27		
	Conical,	.....	.....	.....	4.47	1.18	6.49	2.90	5.79	1.99	3.42		
Oxford,	Common,	2.35	1.68	1.93	5.27	2.14	5.12	3.46	5.38	1.79	5.12	2.92	0.90
	Conical,	2.35	1.84	2.00	5.19	2.14	5.55	3.43	5.42	1.79	5.09	2.95	0.90
Palmyra,	Common,	1.22	0.85	1.65	4.00	0.98	5.61	4.19	4.08	3.27	5.06	1.96	0.93
	Conical,	1.58	0.80	0.30	3.51	0.95	5.37	3.93	3.87	3.01	4.87	1.72	0.86

St. Lawrence,	Common,	1.43	1.53	0.47	2.59	2.55	2.48	4.30	4.48	2.34	4.70	2.20	0.58
	Conical,	1.37	1.49	0.45	2.50	2.51	2.25	4.09	4.20	2.22	4.73	2.18	0.56
Union-Hall,	Common,	.....	0.63	2.17	3.93	0.76	3.39	4.19	2.65	1.50	1.74	2.62	
	Conical,	.....	0.72	2.11	4.01	0.81	3.33	4.24	2.68	1.58	1.74	2.58	
Oneida Conference	Common,	1.44	1.61	0.86	4.60	2.77	5.97	3.03	4.24	2.17	2.53	1.50	3.83
	Conical,	1.42	1.66	0.92	4.46	2.64	5.84	2.91	4.17	2.05	2.42	1.49	3.84

MEMORANDUM.

The two rain gages stand on a post eight feet from the ground, about six inches apart. The tops are on a perfect level, and free from all obstructions. Nevertheless, it will be seen from the foregoing table, that the common gage has in every rain that has fallen during the past year, taken a considerably larger quantity of water than the conical. It will also be seen by said table, that the percentage of the difference in the quantity taken at different times is not uniform. What is the cause of this discrepancy?—Clinton academy.

I have in noting the quantity of water that has fallen, used both the conical and common pluviameter for seven months, and found them to disagree materially. I have taken much pains to examine into the cause of this difference, and can attribute it to the fact that it evaporates rapidly from the conical. The conical one is most simple, but in order that it should answer the purpose, the water must be measured at every fall of rain. This would be quite difficult sometimes, from the fact that so little falls.—Lansingburgh.

May. Set up the conical rain gage, and find the two to vary considerably more than I anticipated, and by reference to the former reports, it appears, that whereas the common rain gage has generally measured the most, it has through this season, invariably measured the least. I supposed that this must be owing to some circumstance which might be discovered; but have not, by the strictest scrutiny been able to detect any.—Lowville. Whenever a rain is accompanied with wind, the difference is in favor of the old gage; and this difference is greater or less, according as the wind was more or less violent. When no wind attends the rain, the difference is in favor of the conical gage. In cases where the old gage has the advantage, it is doubtless owing to the guard around the top.—Onondaga. Much care has been bestowed upon the observations made with the common and conical rain gages. Yet it will be seen that occasional differences in the results have occurred, for which I have been unable to account.—Oxford.

Latitude, Longitude and Elevations of the respective places.

Academies.	N. Latitude.	W. Longitude.	Elevation of places of observation above tide.	*Topographical Remarks.*
Albany, ...	42° 39	73° 44	130	On the west side of the valley of the Hudson, and on the edge of a plain extending back to the Mohawk.
Auburn, ...	42 55	76 28	650	In the valley of the outlet of the Owasco lake, about 100 feet below the lake, and 250 above the canal at Port-Byron.
Bridgewater, ...	42 55	75 17	1286	
Cambridge, Washington, ...	43 01	73 23	.....	On the Hoosac river, an eastern branch of the Hudson.
Canajoharie, ...	42 53	74 35	284	On the west side of the valley of the Mohawk.
Canandaigua, ...	42 50	77 15	.....	At the northern extremity of the Canandaigua lake.
Cherry-Valley, ...	42 48	74 47	1335	In an elevated valley on the height of land which divides the tributary waters of the Susquehanna from those of the Mohawk.
Clinton, Long-Island, ...	41 00	70 19	16	On the eastern part of Long-Island.
Cortland, Homer, ...	42 38	76 11	1096	In the valley of the Homer river, 98 feet below the Tully lakes.
Delaware, ...	42 16	74 58	1384	In the valley of the west branch of the Delaware river.
*Dutchess County, ...	41 41	74 45	.....	On the eastern bank of the Hudson.
Erasmus Hall, ...	40 37	73 58	40	On an inclined plane, gradually descending to the ocean, near the western extremity of Long-Island.
Fairfield, ...	43 05	74 55	1185	About 300 feet above the valley of West Canada creek, and 800 feet above the Canal at Herkimer.
Farmers' Hall, ...	41 20	74 11	.....	Elevation above tide water 425 feet, as ascertained by the recent rail-road survey.

CONTINUED.

Academies.	N. Latitude.	W. Longitude.	Elevation of places of observation above tide.	*Topographical Remarks.*
Fredonia, Chautauque co....	42°25	79°24	645	On the east side of Canadaway creek, on a flat about 80 feet above Lake Erie, distant 2¼ miles from the lake. On the southeast the highlands of Chautauque are distant 7 miles.
Gouverneur High School,...	44 25	75 35	400	On the Oswegatchie river, probably about 400 feet above tide.
Hamilton, ...	42 49	75 34	1127	In the valley of a branch of the Chenango, 702 feet above the canal at Utica.
Hartwick, ...	42 37	75 04	1100	On a tributary of the Susquehanna, at least 1,100 feet above tide water.
*Hudson, ...	42 15	73 45	150	On the east side of the valley of the Hudson, about 150 feet above the river.
Johnstown, ...	43 00	74 23	.....	On the north side of the valley of the Mohawk.
*Ithaca, ...	42 27	76 30	417	In a valley at the head of Cayuga lake, about 30 feet above the surface of the water.
Kinderhook, ...	42 22	73 43	125	On a plain elevated 125 feet above the Hudson, on the east side of the river.
Kingston,..... ...	41 55	74 02	188	On an extensive plain 188 ft. above the Hudson river, on the west side.
*Lansingburgh,.....	42 47	73 43	30	In the valley of the Hudson, on the east side of the river.
Lewiston, ...	43 09	79 10	280	On the eastern bank of the Niagara river, near Lake Ontario.

Lowville,	43° 47	75° 33	800	In the valley of a branch of the Black river, about 100 feet above the level of the river.
Middlebury,	42 49	78 10	800	In the valley of Allen's creek, a tributary of thé Genesee river; estimated to be from 200 to 300 feet above the canal at Rochester.
Monroe,	43 06	77 39	600	7 miles south of Rochester.
*Montgomery,	41 32	74 00	.....	On the Walkill, a western branch of the Hudson.
Mount-Pleasant,	41 09	73 47	.....	On the east side of the valley of the Hudson; 125 feet above its level.
North-Salem,	41 20	73 37	170	On the north bank of the river Titlicus, about 20 miles from Peekskill, and about 170 feet above the level of the sea.
Newburgh,	41 30	74 05	150	On the west side of the valley of the Hudson, probably 150 feet above the surface of the river.
Oneida Institute,	43° 07	75° 14		
Onondaga,	42 59	76 06	.....	On the west side of Onondaga creek, in Onondaga valley, about 50 rods from the same, and 20 feet above the level of its banks.
*Oxford,	42 28	75 32	961	In the valley of the Chenango river.
Oysterbay,	40 50	73 49		
Palmyra,	43 05	77 16	450	
Pompey,	42 56	76 05	1300	On one of the highest points of land in the county, not less than 900 feet above the canal at Salina.
Redhook,	42 02	73 56	.....	On the east side of the valley of the Hudson.
Rochester High School,	43 08	77 51	506	On the Genesee river.
Schenectady,	42 48	73 55		
*Springville,	43 30	.....	.....	Elevation supposed to be about 500 feet above the canal at Buffalo.
St. Lawrence, Potsdam,	44 40	75 01	394	On the Racket river, 169 feet above the St. Lawrence at Ogdensburgh.
Union, Ellisburgh, Jeff. co.	43 45	76 10	.....	Near the eastern shore of Ontario.

CONTINUED.

Academies.	N. Latitude.	W. Longitude.	Elevation of places of observation above tide.	*Topographical Remarks.*
Union-Hall, ...	40 41	73 56		
Utica, ...	43 06	75 13	173	In the valley of the Mohawk, on the south side of the river. Place of observation 48 feet above the canal.
Sem. of G. & O. Conferences,	42 55	75 51	1100	Near Cazenovia lake, probably from 600 to 700 feet above the canal at Utica.

* Those marked thus, are altered from the table of last year, either in latitude or longitude, according to the reports of the respective institutions.

APPENDIX No. 1.

Meteorological Observations for 1835, *made at Augusta, Hancock county, Illinois, by Samuel B. Mead, M. D., and communicated by him.*

THERMOMETER.—MEAN.	January.	February.	March.	April	May.	June.	July.	August.	Sept'ber.	October.	Nov.	Dec.
1st ½ month, at sunrise,	24.93	4.00	28.89	43.00	53.60	67.33	60.13	64.26	57.46	45.40	43.06	23.73
" " at 2 P. M.	43.53	23.28	50.07	62.06	76.80	83.33	77.80	84.53	77.20	71.20	56.33	44.60
" "at 1½ hour after sunset,	39.07	16.43	42.20	54.40	64.53	74.26	68.53	74.40	68.40	61.53	51.60	36.66
2d ½ month, at sunrise,	30.44	18.86	36.62	41.66	62.75	60.13	67.93	59.43	45.80	47.62	21.33	30.00
" " at 2 P. M.	45.00	40.07	56.13	59.20	79.25	74.06	85.81	76.50	66.26	64.37	39.40	44.00
" "at 1½ hour after sunset,	40.44	33.71	49.62	55.06	71.81	67.53	75.69	67.12	58.26	57.76	31.60	39.25
1st ½ month,	35.84	14.57	40.38	53.15	64.97	75.07	68.82	74.39	67.69	59.37	50 33	34.99
2d ½ "	38.63	30.88	47.45	51.97	71.27	67.24	76.41	67.35	56.77	56.58	30.77	37.75
Whole "	37.23	22.72	43.91	52.56	68.12	71.15	72.61	70 87	62 23	57 97	40.55	36.37
Lowest,	7	—23	9	23	43	46	50	48	35	28	4	8
Highest,	59	58	78	84	87	90	94	90	88	85	69	58
Range,	52	81	69	61	44	44	44	42	53	57	65	50
Days—fair,	16½	19½	20½	21	18½	21½	21½	23½	22	23	19	23½
" cloudy,	9½	7	7½	6	5½	4	2	5	5	4	5½	5½
" rain,	3½	1	2	3	7	4½	7	2½	3	4	4½	1½
" snow,	1½	½	1	.....	.....	.....	.....	.....	.....	.....	1	½

Annual mean, 53.02. First frost, September 23. First snow, November 20. The winters are very sunlike here. Cold winter weather commenced about the 20th November last. Last winter, a year ago, (1834—35,) it commenced about 1st February. The winter preceding, on the 1st January, and continued 4 weeks. The winter before that, it did not commence, as I was informed, until the 1st of March. The cold weather continues from four to six weeks.

APPENDIX No. 2.

ARTICLE I.

OBSERVATIONS ON SOLAR AND LUNAR COLUMNS, HALOS, THE AURORA BOREALIS, AND AURORAL CLOUDS, AND REMARKS ON THE CONNEXION BETWEEN THESE PHENOMENA AND CRYSTALS OF SNOW.

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SECTION I.—*Vertical luminous columns.*

As this meteorological phenomenon is rarely alluded to in books, and as I have seen no complete description of it, nor any theory which appears to have been considered perfectly satisfactory, I shall describe five of these lunar and solar columns, stating such reflections as occurred at the time, in relation to their cause, and then propose a theory.

On the 14th of March, 1835, I observed a white vertical column passing through the moon. The apparent distance of the moon's centre from the horizon, was about seven and a quarter degrees, as I ascertained by the sextant. Ther. 35°; barom. 29.54, and falling. The sky was mostly overspread with thin broken clouds, which were imperfectly striated in a direction nearly at right angles to the magnetic meridian. The white column extended downwards from the moon, three and a half degrees, (i. e. about half way to the horizon,) and terminated in a point. This conical part had its base at the moon, nearly of the same diameter as the moon itself. The difference between its breadth and that of the moon, was no greater than would be due to irradiation. Above the moon, it was like a frustum of an equal cone, and was as though about three fourths of the length of the cone had been cut off, leaving a blunt but indistinct termination. The clouds, after a few minutes, covered the moon so thickly as to put an end to the phenomenon.

I have twice before had the good fortune to witness this interesting phenomenon in connexion with the moon, and once in connexion with the sun; although from the instances found on record, we might be tempted to believe it exceedingly rare. For reasons before stated, I shall make the following extracts in relation to this subject from my meteorological records, stating such reflections in regard to the theory, as occurred to me at the time.

"Union College, Feb. 21st, 1829. This evening, at nine o'clock, I witnessed a singular meteorological phenomenon, and called the attention of several of the students to it; among them were Messrs.

Blatchford and Echols, of the senior class. A luminous column appeared to pass through the moon in a direction exactly vertical, or more strictly speaking, in a vertical plane. Its width remained nearly constant, and nearly equal to that of the moon; whilst its length appeared to vary from one to ten degrees or more. Indeed, its length was varying once in a few seconds; sometimes the one arm and sometimes the other instantly shortening or even disappearing. As near as could be ascertained, these changes were manifest to the eyes of us all nearly simultaneously. Several other circumstances showed still more conclusively that it was not an optical illusion. The position of the meteor was not in the least changed by changing the head from a vertical to a horizontal position, though it seemed generally to be rather brighter, larger and more constant. The moon was between the full and the third quarter. Thermometer stood at 18° Fah. barom. 29. 50 inches. There was a gentle breeze from the north; the wind, during the day, had blown with unusual violence from the N. W. The sky at the time of the meteor was chiefly cloudy, yet clear near the moon, which was six or eight degrees above the horizon. When the moon disappeared behind a cloud, the meteor remained about as distinct as before in parts at the same distance from the moon. It continued visible till nearly ten o'clock, when there only remained a vertical streak, much fainter and shorter.

Oct. 14th, 1831. I find in Dr. T. Young's Natural Philosophy II. 303, the following reference, "Messier on two vertical cones of light attached to the moon, A. P. 1771. 434. The moon being covered with thin clouds." This appears to be the only instance on record, of a similar appearance connected with the moon. It differed from this one observed by me in being conical, and in being seen only when the moon was covered by clouds. There are a few other references in the same place to some appearances near the sun, which may have been analogous.

September 20th, 1833. I find in Smith's Optics, a single instance of a similar vertical beam passing through the moon, and another through the sun. The former was observed by Hevelius, and formed part of a paraselena. The latter was observed by Christopher Rothman, at Cassel, Jan. 2d, 1586, [and called by him a comet!] These are the only cases of the kind referred to by Huygens.*

The fluctuations which I observed in the beam, are not mentioned as belonging to those few phenomena of this kind which have been hitherto observed. The nearest approach to this which I find, is in Scheiner's description of a circle around the sun, which he says, "did not constantly continue like itself, but was perpetually fluctuating,"† The particular character of the fluctuation was not described by him.

Cause of the vertical beam.—Huygens attributed the phenomenon to the reflection from the convex surface of cylinders of ice having horizontal axes; but admits that "in one thing indeed there

* Dissertation on Parhelia and Paraselenae, see Smith's Optics, vol 1. p. 226.
† Smith's Optics, 1, art. 572.

is a difficulty in the theory; that is, how an upright beam caused by these reflections, could be so neatly terminated on each side as the figure" (of Hevelius) "seems to require; because many of the horizontal cylinders that appear out of this beam," (or as he should have said, that are *situated* out of this beam)* "may reflect rays to the eye? If there was any doubt as to the correctness of Hevelius' figure, my observation removes it, and confirms the difficulty under which the hypothesis labors. Moreover, Huygens infers, both from his own theory and the observation of Hevelius, that this vertical beam will be "narrower next the moon, than any where else," and that above the moon, "it ought to be dilated till it vanishes." Now, this is not agreeable to my observation. The vertical beam which we observed (Feb. 21st, 1829,) was not only well defined, but sensibly of the same width through its whole length. There was no dilatation perceived at or towards the upper extremity. May not this phenomenon (the vertical beam,) be produced by the reflection of the moon's rays from crystals of snow, having the form and position of horizontal plates? Would not the radiated crystals which we occasionally observe, naturally tend, in descending, to preserve nearly a horizontal position? Indeed, Huygens suggests, (but without appearing partial to the hypothesis,) that the beam which was observed to pass through the *sun* might possibly have been caused by flat stars of snow, though he associates them with his favorite cylinders which they are supposed to terminate. If horizontal plates reflect light specularly, it can only be in vertical planes. This hypothesis has therefore an advantage over that of cylinders, inasmuch as they would produce that definite outline which is actually observed. It has another advantage: the plates are known to have a real existence in nature.

December13th, 1833. "Yesterday, December 12th, 1833, I observed these plates, in descending, to preserve a position exactly horizontal. This actual observation removes all doubt as to the truth of the above conjecture. The stellate crystals were large, regular and possessed of two plane and smooth specularly reflecting surfaces. That tendency to assume a horizontal position, which I have found them to possess, probably arises from the flexibility of the extremities of the rays, in consequence of which they are there bent a little upwards. This renders the horizontal position one of equilibrium, whilst the curvature affects but little the general direction of the crystal. The lowness of the temperature at the time of the meteor favors the above theory. There is only one difficulty in this hypothesis, though it is not peculiar to it: that is, plates perfectly horizontal could not produce at the same time a beam above and below the moon." This difficulty, which then appeared to exist, I have since obviated by supposing a second reflection. The theory I shall state more particularly after giving some other extracts from my journal.

"Union College, December 27th, 1833.—I saw this evening, a vertical column passing through the moon, such as I have before

* If they "*appear*" at all, it will of course be by reflecting "light to the eye"

described. I first perceived it about six o'clock, P. M. About twenty minutes afterwards, when it disappeared, I took the apparent altitude of the moon (as affected by refraction and parallax,) by the sextant, and found it to be 10° 10½′, barometer 29.61, thermometer 25½°. Dew point somewhere below 16°, which was the lowest point to which I could bring the internal thermometer of Daniel's hygrometer. There was a breeze from the N. W. There had been some wind during the day, but not violent. The sky at the time was almost wholly clear, there being only a narrow bank of clouds near the western horizon, and one or two very small light clouds not far from the moon. This luminous column, like the preceding, experienced occasional and sudden variations of length; the part below the moon extending occasionally more than half way to the horizon. The part above the moon was much shorter, and disappeared first. The width of the column was equal to the horizontal diameter of the moon, if we make allowance for irradiation. Yet to the naked eye, the horizontal diameter of the moon exceeded the width of the column; and the difference was greater in this case than in that of the same kind of phenomenon before observed, owing no doubt to the inferior brightness of this column; for when the moon was viewed through one of the colored screens of the sextant so as to reduce its brightness, and consequently its irradiation to the same point as that of the column, they appeared of the same width. At either extremity, the brightness of the beam faded away insensibly, as the beams of the aurora borealis frequently do, and consequently appeared longer by indirect vision, by which all faintly luminous objects are more distinctly visible."

"December 28.—This morning, at seven o'clock, the sky was nearly covered with light clouds, most of which disappeared in one hour, before the rays of the sun. At 7 A. M. a few flakes of snow were for a few minutes falling to the earth; and about two to each square inch of surface had fallen during the night or morning; all those which were falling, as well as those which had fallen, presented the stellate and pinnate form. This affords an argument in favor of my theory of the luminous column seen last evening, showing not only that the requisite optical instrument has a real existence in nature, (which cannot be said of the cylinders of Huygens,) but that it falls to the ground so soon after the appearance of the meteor, that it must in all probability have been present in the air at the time. The smaller crystals were thin, with two polished or (more properly speaking) specularly reflecting surfaces. The flexibility of the extremities of their rays would enable the plate to preserve a horizontal position, whilst the smoothness of the upper and lower surfaces would enable them to reflect regularly and intensely. But the larger ones when they reached the earth, were less smooth and thin. Both of these circumstances may have depended on the successive additions which had been made to them, in falling from a considerable height.* They were all of the regular form with six pinnate radii. The thermometer this morning, at the time of the snow, was 15°. It had fallen, as I had observed it

* It was subsequently discovered that the presence of both kinds is essential to the effect.

to do, when similar crystals were seen, on the 12th of the same month. I have found them generally attended by a depression of the thermometer."

Similar column through the sun.—"On the evening of Jan. 5th, 1834, just as the upper limb of the sun had disappeared behind a hill, the top of which is a little above the horizon of Union College, my attention was called to a phenomenon similar to that which I had previously in two instances observed near the moon. My friend, Professor Jackson, also observed this last. It was a bright distinct column of a reddish color, extending vertically upwards from that part of the hill where the sun had just disappeared. That its position was exactly vertical, I ascertained by means of a plumb line. Its length, when I first observed it, was about six degrees. Gradually contracting in length, it disappeared about a quarter of an hour after the sun had disappeared. Its apparent width was not measured, but appeared about equal to that of the sun, and seemed uniform through about half its length; the sides of the lower half being sensibly parallel and well defined. The diminution of brightness was more rapid above the middle than below it. At this time there was a gentle northerly breeze. The sky was sprinkled with exceedingly light portions of fleecy clouds, composing what some have called a mackerel sky; but they were extremely faint. The thermometer was 16°; the barometer 29.91 inches. The evening was perfectly clear, and colder than any preceding one of the winter. During the above phenomenon, the sky near the place where the sun had set, and perhaps about 10° on each side of it, was red. This redness was distinct at the height of 1°, 25′, from the hill, as I ascertained by the sextant. The column was of a similar color, but much brigher. The redness of the sky gradually diminished, and disappeared one hour and a half after sunset. The co-existence of severe cold with the above phenomenon confirms my opinion, that it, as well as the columns through the moon was produced by reflection from regular crystals of snow: for I have observed that these crystals with six radii were usually attended by severe cold." The thermometer was, in this case, at zero at seven o'clock the next morning, although the sky was cloudy, and the wind southeasterly.

I have recently seen, in an old volume of the Edinburgh Journal, a notice of a vertical column seen by Capt. Parry. No theory is given. I shall describe one more column observed here in 1836.

Vertical lunar column, accompanied by intense cold, and followed by the descent of stellate crystals, of three kinds, viz: 1st, White and composite; 2d, smooth, symmetrical and horizontal; 3d, smooth and inclined ones, having six unequal radii. The following observation was made February 5th, 1836:

At 9 h. 30 m. P. M. a short, faint, vertical and luminous column passed through the moon. It occasionally extended below the moon to the distance of one diameter, and above it to the distance of two. Its width was greatest at the moon, where it exceeded that of the moon by about half the moon's diameter, as though a narrow corona was combined with the column, as I believe to have been the act; for though the column was less distinct and regular than si-

milar ones before observed, its general width was about equal to the horizontal diameter of the moon, and increased at the moon abruptly, by turning circularly about it, as though a white annulus concentric with the moon and contiguous to it, had been superimposed on the column. As the column was faint, short and ill defined, many of the crystals must have been irregular. This was confirmed by the observation of those which subsequently fell.

Phenomena at and before the time of the column.—Sky perfectly clear, except that there was a narrow cloud near the moon, which, from its position, might be called sub-auroral. Barometer 29.91, falling; thermometer unusually low. Thermometer at sunrise had been —14°, at 10 o'clock, A. M. —6°, at 2 P. M. —1°, at one hour after sunset —2°, at 10 o'clock, P. M. —4°.*

The mean temperature of the day, as deduced from the ten o'clock observations, was less than that of any day which had preceded it this winter; though the mean temperature had been less three days' before, according to the method prescribed for the academies by the Regents of the University. This intense cold conduces to the formation of regular crystals.

Succeeding phenomena.—The column and cloud both disappeared before 10 o'clock. On the next morning, at 7 o'clock, cirrus clouds were seen. They were not what I have named auroral or magnetic, although auroral clouds generally belong to that class. These were long horizontal clouds, near *different* parts of the horizon. On the morning of the next day, the 7th, about thirty-five hours after the vertical lunar column, I observed that snow had begun to fall, and that nearly all of it was in crystals of the stellate form, with six radii. This was, as is usual in such cases, visible to the naked eye, the diameters of the crystals varying from $\frac{1}{8}$ to $\frac{1}{12}$ inch. The character of these crystals confirms the theory which will be presently proposed, part of which has been already stated in the order in which it was suggested. That theory will be found to require that some of the crystals should be flat and specularly reflecting, others composite or irregular. This was actually observed to be the fact. The smooth plates had two specularly reflecting surfaces, and their diameters varied from $\frac{1}{12}$ to $\frac{1}{8}$ of an inch, the large ones being no less regular than the smaller. The structure of all the smooth ones was pinnate, i. e. each ray was furnished with smaller parallel ones on both sides, at angles of 60° and 120°. Many of them possessed the most perfect symmetry. This symmetry and the consequent stability of their equilibrium in the horizontal position, explains the vertical position of the column. Again, there were nearly as many others, which, though smooth and pinnate, were, from the inequality of their radii, deficient in symmetry. Lastly, the white masses which were more irregular and compounded in their internal form or texture, but equally regular in their external form or configuration, having some resemblance to regular hexagons, were several times as numerous as all the transparent crystals. The above were the characters of the crystals which fell during the first part of the storm. In the evening,

* These have been the hours at which we have made observations since the commencement of the present year.

it appeared from an examination of the half inch of it which had fallen, and of that then falling, that the proportion of stellate* crystals had diminished during the day, so that none were then present; nothing but fine snow was then falling. These facts tend to confirm our theory; the snow which first fell was that which was first formed and that the crystallization at the time of the column was not in a very advanced stage, is evident from the circumstance that the column did not appear in the cloud, but near it: and that that was a small cloud and the only one in the sky.

Theory of the Vertical Columns.

We have shown that some regular icy crystals which form in the atmosphere, are smooth, transparent, and horizontal. Others, whether regular or irregular in their general external form, present no broad and smooth reflecting surfaces, but small facets variously inclined, both at the surface and the interior of the mass. These last, though consisting of parts which in themselves are as transparent and smooth as the first kind, appear opake and white, in consequence of the repeated reflections which take place in various directions in the interior and at the different parts of the general surface. Hence for practical purposes, they may be considered, white, opake and rough bodies, sending the incident light in all directions indiscriminately, as though it were radiated; and as for the application we have immediately in view, (and we have not space to enlarge upon certain nice theoretical distinctions,) this may be considered as radiant reflection. The reflection of the flat, smooth crystals is specular reflection, being like that of specula or mirrors, the reflected ray making the same angle with the surface as the incident ray, and being in the same plane at right angles to the reflecting surface. Now these mirror-like crystals, which my observations and theory show to be in general exactly horizontal, will by reflection illuminate the white crystals situated obliquely above them—and some of them will be frequently thus situated, for I find the two kinds to be mixed in the falling snow. Although the smooth plates will not direct into the vertical plane any light which did not arrive at them in this plane, yet they will increase the illumination of the white snow in this plane, more than though they had dispersed the light in all directions. In this plane then, the white snow will be illuminated, both by the direct light of the luminary and the reflecting light of these mirrors. The existence of crystals having a smooth horizontal surface, is, therefore, sufficient to produce an accumulation of light on other irregularly reflecting particles situated in a visual vertical plane passing through the moon or sun; and in this way these illuminated white particles, though situated in our atmosphere, and at different distances, appear to compose a luminous column passing through the moon. The reflection by particles of water and of air would produce a luminous column, provided they were first strongly illuminated by reflection from the horizontal plates. But the bright-

* We employ the term stellate in conformity to general usage. We have, however, shown, in an article on irradiation, that the principal radiations of the stars make angles of 120°, not 60°.

ness of the column, as well as the descent of the more complicated, white and apparently opake flakes, induce me to consider these as having an agency, though not a necessary one, in the second reflection. When the luminary is above the horizon, a second reflection is necessary; for those rays which come from any part of the luminary to the visible parts of our atmosphere are sensibly parallel.

Now when we consider the curvature of the earth, and the consequent curvature of horizontal atmospheric strata, it would be easy to show that two specular reflections, the first from the upper and the second from the lower surfaces of horizontal plates, diffused through strata of great horizontal extent, in the direction of the moon or sun, might produce a short column above the luminary.

But the lower part of the column could not be thus produced; and as the upper part of the lunar column had no excess of brightness, as compared with the lower, I infer that it did not enjoy the advantage of being partly produced by any cause in addition to that which produced the part below the moon. I consider the whole as produced in the same way, by two reflections. The first is a specular reflection from the surfaces of superior horizontal crystalline plates, by which the light is thrown obliquely upwards in a vertical plane, producing a strong illumination of particles which are so arranged as to disperse light in all directions. It is not necessary that this second reflection should be, strictly speaking, radiant. The more complicated crystalline groups, such as common snow or the opake stellar crystals which I observed falling simultaneously with the smooth plates, present a great number of small plane surfaces variously inclined, and calculated to reflect light in different directions, even when these facets are not so small as to make the reflection strictly radiant.

Lest some one might, at first sight, find a difficulty in conceiving how a particle which appears to be below the moon, can be illuminated by a lunar ray reflected obliquely upward upon it, it may be necessary to repeat, that the rays, which from any part of the moon, arrive at those parts of the earth's atmosphere which are above or a little below our horizon, are sensibly parallel, on account of the great distance of the moon.

The same theory is applicable to the solar and lunar columns. The red column which I observe above the sun, was seen when the sun was below the surface of the hill, but above the horizon. It vanished when the sun had decended below the horizon. The first reflection was, in the case of this meteor also, an upward reflection from horizontal plates. The lower surfaces when smooth, would in all these cases contribute to the first or upward reflection, and under certain circumstances which I have stated, might contribute to the second reflection in producing a part of the column.

It is unnecessary to dwell upon the redness of the solar column. The cause is the same as that of the moon during an eclipse, and of the clouds at sunset; it is simply the result of the reflection of

the complementary blue by the air. The existence of the lunar and solar columns is to be accounted for on the same principle; the reflection of light from flat horizontal plates, succeeded by a subsequent radiant reflection; and I am unable to understand why one class should have been attributed to reflection from the convex surface of cylinders, and the other to reflection from their flat terminations. But to say nothing of this discrepancy, it is a sufficient answer to both these hypotheses, that these cylinders are purely imaginary, having no existence in nature. Moreover, if they had, what should keep them in the requisite position, sometimes exactly horizontal, sometimes exactly vertical? On the contrary, the stellar plates have a real existence, and when thin and perfect, the horizontal position is one of equilibrium, as shown both by theory and observation. The fluctuations observed in some of these columns, I am disposed to attribute to transient breezes in the higher regions of the atmosphere, giving to the horizontal crystals temporary and various inclinations, under which circumstances there would be, for a short time, (throughout the extent embraced by the disturbing cause,) no regular reflection in one vertical visual plane, but the light would be variously dispersed. As to the terminations of the beam, we should expect it to be limited above and below, by the limits of the atmospheric stratum containing the crystals; and as the visual rays directed to different parts of the column traverse this stratum with different and gradually varying degrees of obliquity, we should expect the terminations of the column to be indistinctly defined. Under some circumstances, the inferior part would be limited by the opacity of the air, and of bodies suspended in it. Again, the old opinion was, that the column should be broadest at its two extremities; whereas I find it to be exactly the reverse; i. e. broader at the luminary than at the extremities, in those cases in which there is any sensible variation. I am disposed to attribute this to the circumstance, that the sections of the luminous disk by visual vertical planes, diminish in extent each way from the vertical diameter, so that as they approach the right or left limb, the quantity of light liable to be reflected in such a plane becomes so reduced, that with the limited number of crystals at a certain angular distance from the luminary, the light reflected to the eye is insensible, and the width of the column is contracted. This contraction, when once commenced, will be gradual, on account of the gradual diminution of the sections of the luminary, and the gradual diminution of the obliquity of the visual rays traversing the stratum of air containing crystals. The relative shortness of the upper arm of the lunar column may be attributed to the circumstance, that the visual rays in that direction must, in consequence of being more nearly vertical, encounter fewer crystalline plates. The edges of the crystalline plate, and their superior and inferior surface at the bent extremities of the crystalline rays, would in some cases be alone sufficient to produce that second reflection, which, according to the above theory, is always necessary to the production of this meteor, when the luminary is above the horizon.

Finally, in some instances, as in the case of the column of Feb. 1836, the second reflection would be in part produced by inclined single plates, having unequal radii and coexisting with those which are symmetrical and consequently horizontal. I have shown that the latter are more abundant, but that the former sometimes exist. Those which have unequal rays, cannot, in descending, preserve a horizontal position, but having various and variable inclinations, they must reflect light in all directions, and thus perform the same office as the white composite masses.

SECTION II.—*Halos.*

We shall enumerate the lunar halos observed since the beginning of November, 1834. Others before observed will be given in a table. Those whose diameters were about 6°, more or less, will be called coronæ; all the other halos had diameters of about 46°.

The prevalent opinion of philosphers is, that the halos of from 45° to 47° in diameter, depend upon crystals of ice, and that coronæ depend upon small globules of water. It will be seen that the following observations afford evidence that both may be produced by crystals of ice. This will be rendered still more evident by a comparison of this section with that on vertical lunar columns and that on auroral clouds.

1834, Nov. 15. Halos. Ther. low and falling; magnetic clouds on the 16th; rain on the 17th.

Dec. 5th. Halo faint; thermometer nearly stationary, but had been falling for several days; snow and rain next day. Dec. 9th. Coloured corona. The order of the colours proceeding from within outwards, are white, orange, green and red. Ther. nearly stationary, but it had fallen considerably in the morning. On the next morning a little snow fell, *all* of which consisted of crystals having six pinnate rays.*

Dec. 15th. Halo during the eclipse; thermometer had fallen during the preceding day and night; this morning at zero. Next morning the falling snow consisted of compound crystals, regular in their general form, i. e. having six radii; but they were opake.

1835, Feb. 3d. Halo and auroral clouds; ther. low and falling; snow within two days. Feb. 12. Halo; ther. 10° lower than the preceding evening; snow next day.

Oct. 28th. Coronæ. Rain 30th; ther. had begun to rise 26th, but the dew point had risen much faster.

Dec. 3d. Halo. Ther. had fallen low in the morning, but had again begun to rise; hail and snow next day.

1836, Feb. 2d. Coloured corona; order of the colours in the concentric circles, commencing with the smaller arc; 1st light brownish orange; 2d, green; 3d, red. This corona is formed in a white auroral kind of matter, that is extensively diffused in the sky, and in many parts striated in a direction at right angles to the magnetic meridian, so as to constitute proper auroral clouds.

* That is, each ray was, as it were, feathered with smaller parallel rays on each side, making angles of 60° and 120° with the principal ones.

Moreover it had been preceded on the same evening by streamers of cloud converging to the southern point of the horizon. The thermometer had been below zero all day. It had fallen to 18° below zero in the morning. Snow in 23 hours after the corona.

Feb. 5th. Slight corona;* only one circle; that white and contiguous to the moon; seen at the same time with a vertical lunar column. Depression of temperature on the preceding morning to —14°; snow on the 7th A. M. and P. M.

During these halos the barometer was in some instances falling, in others rising; but in five instances out of seven, it had been gradually rising on the previous day. It will be seen that the circumstances attending the coronæ and the larger halos are similar. Both are almost invariably followed by snow, unless the atmosphere near the earth's surface is of such a temperature as would melt it. Both are usually preceded by an increase of cold and of atmospheric pressure. In all the preceding instances except one, the thermometer had been falling.

The theory of Newton, that coronæ are produced by globules of water $\frac{1}{1\,0\,0}$ of an inch in diameter, greater or less according to the less or greater diameter of the corona, appears to have prevailed ever since his time, and to have been adopted by Frauenhoefer, Brewster,† and other distinguished writers on optics. Perhaps it may not have been called in question by meteorologists; yet meteorological facts appear to be opposed to it. It is even a popular opinion, that lunar coronæ generally prognosticate snow. There is no difficulty in admitting that the temperature at the height at which coronæ exist, is sufficiently low for the crystallization of water during the warmest weather in which coronæ appear, and that this may arrive at the earth in the form either of snow or rain, according to the temperature of the inferior strata of the atmosphere. But on the other hand, it appears improbable that globules of water of a diameter sufficient to produce coronæ in the way supposed by Newton, could remain in the liquid state at a considerable height in the atmosphere, at a time when the air at the earth's surface is at zero; or that globules of that magnitude should form the regular and delicate crystals which descend after coronæ; or finally, that the regularity of these crystals should so often be observed after coronæ without being in some way connected with them as their cause. If water, previously to its crystallization in extremely cold weather, were converted into drops sufficiently large to produce coronæ, we might with a microscope see them arranging themselves on the panes of our windows.‡ As these views, however, are founded rather on meteorological observations than optical calculations, they are offered with some diffidence; yet without the support of such observations any theory must be considered unsatisfactory. It is not improbable that

* The others were all coloured. This was not of the kind generally called coronæ, though dependant on a similar cause.

† See Brewster's Optics.

‡ Since the above views were written, my attention has been called by one of my pupils, to a fact which tends to confirm them, viz: the production of coronæ by the hoar frost on windows.

some coronæ may be produced by drops before their congelation, and others by crystals.

That the larger halos depend on refraction through crystals of snow, is sufficiently evident and universally believed. The theory of Mariotte and Young satisfactorily account for the halo of from 45° to 47° in diameter. With the index of refraction belonging to ice, a refracting angle of 60° is known to produce the requisite deviation. But with regard to halos larger than coronæ, there are three points which seem not to have been satisfactorily settled, viz: 1st. Whether any actual meteorological observations have established any connexion between these, or indeed any kind of halos, and *regular*, more than between them and irregular crystals? 2d. Whether the refracting angle of 60° produces the halo of 92° in diameter as well as that of 46°? 3d. In what kind of crystal and in what part of it, that angle of 60° is formed, which, for at least one kind of halo, all admit to be requisite.

With regard to the first question, I have observed the descent of regular stellate crystals subsequently to the appearance of halos, after such a lapse of time as their descent might be expected to require, and in instances so numerous as to render it improbable that this was a mere accidental coincidence. With regard to the other points; either one refraction through an angle of 90°, or two through angles of 60°, would produce the largest halo. Perhaps that co-existence of the halos of 46° and 92°, which is occasionally observed, is to be explained by supposing rectangular parallelopipeds to meet at angles of 60°. It will, probably, be discovered, that the halo of 46° is not produced by proper triangular prisms, having three lateral surfaces, as has been generally believed, but either by dihedral angles of 60° at the points where the spiculæ diverge from each other, or by short hexagonal prisms. Dr. Young evidently refers to prisms in the geometrical as well as optical sense. This is not controverted by Dr. Brewster, who seems to intimate that they depend on triangular spiculæ, though his statement is ambigous. *Opt. p.* 232. That the spiculæ of perfectly crystallized ice are invariably at an angle of 60° with each other, is completely established by observation; the effect of this is seen in the forms assumed by the frost on our windows, and the form of the stellate crystals above described. The radii of these are at angles of 60°, and I have frequently observed them to descend after halos. Now if there exist any spiculæ of snow having equilateral triangular bases, they must be comparatively rare; and no one has affirmed that they are frequently, if at all, seen to descend after halos. The above meteorological observations, and others made on former years, indicate a peculiar connexion between halos and stellate crystals; and we can infer from them, that halos are produced by stellate crystals in some stage (and that not the earliest stage,) of their formation. That their component spiculæ are triangular prisms, I have never observed; and that simple spiculæ of a magnitude sufficient to produce halos, should form separately, and afterwards coalesce to form stellate and pinnate crystals, will not be maintained by any one who has observed the regularity

and delicacy of these structures, and reflected on the laws of chrystallization.

It was intimated that these halos may be produced by short hexagonal prisms. Many such prisms have been observed in the centres of the stellate crystals that fall in this place. Yesterday, (Feb. 26, 1836,) the snow fell to the depth of six inches. It was exceedingly light, and consisted almost wholly of transparent plates of the usual stellar and pinnate form. If the hexagonal nucleus existed in all, it must have been so minute in many of them, as not to be observed; but in many others, the diameter of this hexagonal nucleus, to which the primary rays were attached, was about the one-fiftieth of an inch. In such prisms, when regular, two contiguous sides meet at an angle of 120°, and would not transmit light when the index of refraction is 1.31, nor, indeed, till it is reduced to 1.15, which is impossible. The other sides are either parallel, or inclined at angles of 60°. This last is the angle requisite for the production of the ordinary large halo, which is called the halo of 45° or 46°, though Dr. Young measured one which was much less. Notwithstanding these observed variations, the prism of 60° is universally considered as satisfactorily accounting for this kind of halo. Now it is evident, that in a hexagonal prism, those pairs of sides which are neither contiguous nor parallel, but are inclined at angles of 60°, will produce the same effect as though the dihedral angle were actually completed by the meeting of two surfaces. Such hexagonal prisms, then, may produce the halo of 45°, and when regular, and possessed of the ordinary refractive power, cannot produce the largest kind, except by the right angles at their bases, or by two successive refractions. The largest kind of halo, whose diameter is double that of the former, is attributed by Mr. Cavendish to refraction through an angle of 90°, and by Dr. Young, to two successive refractions through triangular prisms. Two hexagonal prisms would give exactly the same results, or the right angles contained between the bases and the sides, would produce the same result by one refraction. We conclude, then, that the stellate crystals, at a certain stage of their formation, (perhaps before they become stellate,) produce halos, either by a hexagonal nucleus, or by two of their rays meeting, as they always do, at angles of 60°.

Section III.—*Observations on the Aurora Borealis.*

During the last five years, I have recorded the appearance of fifty-six auroras. These, with three others observed between 1820 and 1830, during which time the observations were not regularly recorded, will be alluded to in this or a subsequent section. For the present paper, I shall not copy my descriptions of auroras between 1830 and 1835. In 1835, twelve were observed. This is about the mean of former years.

April, 1835. On the 17th, a quarter before 8 P. M. light clouds were seen flitting over the sky from the N. W., where the aurora had appeared. There was a brisk breeze from the N. W. About 8 an arch had formed, which had the usual direction and position,

although the meteor had not commenced in the usual place. Before the arch formed in the north, the clouds below the light had not an arched, but an irregular outline. The thermometer at 8 was 38°; barometer 19.55. The thermometer was falling and the barometer rising. Snow A. M. and P. M., also on the forenoon of the next day.

August.—On the 19th, a faint aurora, without streamers, was first noticed at 9 P. M. Thermometer 64°, which is 6° lower than at the same hour last night. Barometer 29.80, which is .34 higher than it was then. There is this evening a faint breeze from the north. The dew point at 9, P. M. was 50°. At 9h. 30m. temperature of the air 60°, dew point 51°. Hence the humidity of the atmosphere has increased, but it is, on the whole, less this evening than I have usually found it to be at other times when this meteor has been brilliant. The rain commenced about eighteen hours after this aurora.

22d, 9 o'clock P. M. Breeze slight from the north; sky clear except near the horizon; these clouds appear to be related to an aurora; the signs are in favor of one, and indeed the sky in that quarter just above the clouds, was rather brighter than elsewhere from 9h. till 9h. 30m. Barometer 29.76, rising; thermometer 60°, nearly stationary, as compared with last night.

25th. The rain on the 25th commenced between 2 and 2¼ days after the above slight aurora.

26th. At 9 P. M. the indications of the barometer, thermometer and hygrometer, and the general clearness of the sky, with clouds near the northern horizon, would have led me to expect an aurora, had there been a northerly breeze. The breeze, though scarcely perceptible, was southerly. The clear sky near the northern horizon, was from 9h. to 9h. 30m. brighter than elsewere. The clouds disappeared about the same time with the light, without overspreading the sky. There was no arch. I consider this an aurora imperfectly developed in our latitude.

28th. Rain commenced 3h. 20m. P. M. i. e. 42 hours after the faint aurora above mentioned.

September 4th. The aurora appeared for a short time at 8 P. M., reappeared in 15 minutes and continued about that length of time, before its final disappearance. No defined outline nor any arch. Breeze S. but scarcely perceptible. Ther. at 8 o'clock 66°, at 9 o'clock 65°; dew point, 91°, bar. 29.61. Sky clear before and after the meteor. Rain followed in 46 hours.

Sept. 9th. Very faint aurora, first noticed at 7h. 45m. P. M.; breeze S. but scarcely perceptible; temp. of air at 8h. 30m., 56°, dew point 50°. Air at 9 o'clock, 55°; dew point 50°; dew on the grass. Barom. 29.73, barom. fallen .01 this afternoon, yet it is higher and the thermometer lower than on the last evening. A faint arch was formed which disappeared before 9, yet was seen again at 9h. 50m. much more distinct. It was white, 5° or 6° in breadth, and extended nearly across the heavens, a few degrees north of the zenith, which it reached about 10 o'clock.

Westerly motion.—The transient streamers as well as the compo-

nent rays of the arch, had a westerly motion. This translation of the latter contracted the length of the arch, by producing a gradual elevation of its eastern extremity.

Subsequent rain. This was slight and did not take place before 63 hours.

Sept. 23d. At 4 A. M., an auroral arch was seen and some faint colums above it. At 5 A. M. barom. 29.83, rising; ther. 43°, low, and falling compared with the preceding day; dew point 36°, which is high; sky nearly clear. Thus the state of the atmospheric temperature, pressure and humidity and the clearness of the sky, conform to the general rule for auroras. Breeze not perceptible at the earth's surface. The sky in a few hours became cloudy, and a breeze blew from the north. If rain followed, it was not observed till the 28th, A. M.

In October, no aurora was seen.

Nov. 5th. White auroral arch seen at 10 P. M. At 10h. 21m. 40sec., mean time, it passed through the moon. As the error and rate of going of the watch had been carefully determined with reference to intended observations on the transit of Mercury, the above time may be depended on. A comparison of this with similar observations, made elsewhere, might enable any one to determine the absolute distance and the progress of the meteor. To determine the first, two simultaneous observations are sufficient. The arch extended east to within about 20° of the horizon.

Concomitant phenomena. Dew point within 3° of the temperature of the air; barom. rising; ther. falling, if we compare the preceding and succeeding half day; sky 9 clear; wind S. W.

Subsequent rain, 20 hours afterwards.

Memorable red aurora of Nov. 17, 1835. On the evening of Tuesday, Nov. 17, the aurora was remarkable for the great extent of sky which it covered, but more especially for its *red* colour. It was also interesting on account of the near approach or actual meeting of the luminous columns, which occurred several times in the course of the evening. At 6h. 30m. a great number of them from different points of the compass, converged towards a point a little west of the star Schoat, or Beta Pegasi. This point, which they approached within a few degrees, had an altitude of about 73°, and an azimuth of about 35, being situated east of south. These then were the angles which the columns, considered as parallel, made with the horizon and meridian respectively. The error in altitude or azimuth probably could not have exceeded a degree or two.

There is more difficulty in determining the exact point from the coalesence of the streamers, and from the circumstance that when they are most condensed near the point towards which they tend, they often do not actually reach it. Do not they in this respect agree with the shooting stars?

Direction of the wind. A gentle breeze from the south, perceptible to a moistened finger.

Lateral motion of the columns. The insolated columns whose

course was observed, *always moved toward the west;* at some periods more rapidly than at others. I observed one, at an altitude of about 45°, translated in this direction at the rate of about 15° in a minute.

Vertical motion of the columns. The vertical motion of the columns was seldom rapid till just before 11 o'clock.

Arches. Number, and width.—The arches were numerous. At one time there were *four* complete, and two partial ones. There may have been 20 or 30 of all kinds in the course of the evening. Some were about 10° in breadth.

Colour of the Meteor. At 5h. 40m., when my attention was first called to the meteor, the light was, in all parts, of a beautiful bright red, like that sometimes presented by clouds strongly illuminated by the sun, about sunset. A considerable portion of the meteor was of this colour during the whole time, and presented a very gorgeous appearance. A portion in the N. W. was, for about an hour, peculiarly brilliant. At the minute when this began to fade, a similar red spot broke out in the N. E. This grew into an arch by extending westward, rising to its maximum height and then bending downwards. In general, during the meteor, the red light predominated in the western parts of it, and the *white* light in the eastern parts. At one time, a seeming translation of white light took place, similar to that of the red just mentioned; a white spot, a little south of east, suddenly faded, and a white spot of about the same magnitude and altitude at that instant appeared at the opposite point of the compass, i. e. a little north of west.

When there were four arches, seen at one time, the next to the lowermost was of a briliant red, the others of a pure white.

The columns were red and white variously intermixed, the white connected with white arches, and the red with red ones. Many of the white columns were of such a length as to extend across the red arches, and so of the red columns and white arches; yet the columns appeared to commence inferiorly in arches of their own colour.

Clouds. At the commencement of the meteor, and during most of its continuance, the sky was not more than 1-100 clouded, the clouds being in the S. W. The clouds increased as the meteor began to diminish, the clouds in the W. and E. being striated in a direction nearly horizental.

Southern arch. The arch which was seen near the southern horizon, (about 10° from it,) seemed to darken the sky beneath it as the northern arches usually do.

Second appearance. A little before 11 o'clock, the aurora (which had not been wholly absent, but being faint, had been chiefly hid by clouds,) reappeared in a different character. It literally covered the whole heavens with vivid coruscations, (white and red,) flashing rapidly upwards from all parts of the horizon, and meeting near the zenith. Just before 11 o'clock, the red had accumulated near the zenith, but the flashes were all white. That the red flashes had before been abundant, I learn from Professor Jack-

son, to whom I was indebted for a prompt notification of the reappearance of the meteor.

At the time when the clock was striking 11, I determined the point of meeting of the coruscation to be as follows; altitude about 74°, azimuth about 19°. So that the point of intersection had, during the evening, evidently moved to the west, and had ascended a little nearer the zenith.

Other meteorological phenomena about the same time.—For three days previous, the wind had been south, the sky generally cloudy, and the barometer falling. On that day the thermometer was lower, and the barometer higher, than on the preceding day, yet the barometer in the evening, though higher than on the preceding evening, was found to have fallen a little since morning. The sky was clear at the commencement of the meteor, but after 2 or 3 hours became about ¼ cloudy. Ther. at 9 P. M. 31°; dew point 27°; difference 4°; bar. 29.63.

Many shooting stars were seen, both north and south, during the meteor. Some ascended, others descended; most of those which I saw, nearly coincided in direction with the luminous columns.

Next morning, there was a white frost. The wind was still generally south, the thermometer falling and the barometer rising.

But the most remarkable phenomenon seen during the day, on the 18th, was such a display of auroral clouds as almost to justify us in considering it as a proper *aurora seen in the day time.* This will be described under another head.

Wednesday, Nov. 18, 6h. 50m., an auroral arch was seen 8° above the horizon. Wind (a breeze just perceptible to a moistened finger,) south. Sky perfectly clear, except the speck of cloud near the west end of arch.

Attendant phenomena.—At 7 P. M., bar. 29.70, ther. 39°, dew point 39°, difference 0°.

Nov. 19th, dense fog in the morning, turning to fine rain for a few minutes about 8h. 30. A. M.

The *color* was uniformly white. The coruscations commenced a little before 9 o'clock, and ¼ of the heavens was frequently covered by them. They extended quite to the zenith. The more permanent columns moved west as usual. I once saw some transient ones appear to move east. The upward flashes were very rapid, transient and frequently of great extent.

At 10h. 20m. the aurora had nearly ceased, and I watched for it no longer.

Succeeding phenomena.—Rain on the 19th, 20th and 21st.

Nov. 26th, Aurora at 5h. 30m. A. M. It was seen not by me, but by my medical pupil, Mr. C. H. Stillman, who has of late assisted me, especially in the observations made with meteorological instruments. He describes this as a single column of white light without flashes, its lower extremity appearing to rest on a stratum of clouds near the horizon. It made an angle with the meridian, the lower extremity being in this plane, the upper considerably east of it. Several other columns seen before 6 o'clock.

Wind south. Ther. low; barom. high; the former lower and the latter higher on this than on the preceding day at the corresponding hours. Snow on the same day and the two following.

Dec. 10th, At 9 P. M. and afterwards, part of a white auroral arch seen a little above and to the east of Ursa Major. Two other transient ones seen below it.

Westerly motion.—The first became elongated by extending westward.

Concomitant Phenomena.—Wind N., sky clear, ther. at 10 o'clock 8°, dew point zero; barom. 30.16, high and rising; ther. lower and barom. higher than at any time within the previous week, at the same hour of the day. The dew point nearer than usual to the temperature of the air. These concomitant phenomena are such as I have in a majority of instances, for several years, found to attend auroras, though of late there have been some exceptions, yet generally in the case of imperfectly formed auroras.

Succeeding Phenomena.—Auroral clouds next day; snow in 34 hours after the aurora.

Observations of former years.—From observations on the aurora for several years, I have arrived at some generalizations in relation to its connexion with other phenomena; but I shall at present only give an abstract of observations made prior to the year 1832.

On the 3d of April, 1820, at 8 o'clock P. M. I observed in Cambridge, Washington county, a meteor similar to that which appeared here on the 29th of August, 1827. The sky was clear. The wind northerly. When I first perceived it there was nothing peculiar. It presented the usual appearances of a bright aurora borealis. The summit of the arch being about 15° or 20° above the northern horizon. The luminous columns had the ordinary direction. The southern arched edge of the meteor, which from the first had been distinguished from the rest by its superior whiteness, soon became entirely detached from it, and the stars became visible in the intermediate space. This arch advanced with great rapidity to the zenith, and then disappeared by moving in a westerly direction. It was about six or seven minutes in coming to the zenith, and about one minute from that time before its easternmost extremity disappeared behind the western hills.

Such arches had before been unusual, and subsequently I observed none like it till 1827.

The following observations were made at Union College:

In 1827, on the evening of August 28th, the aurora borealis was unusually vivid, and the luminous matter exhibited rapid intestine motions along the arch.

On the next evening, the 29th, the aurora again appeared. In addition to the usual phenomena, we observed, about half past 9 o'clock, *a luminous arch*, stretching from the eastern to the western part of the horizon. It was moving southward, and its middle portion had at that time nearly reached the zenith. The luminous matter presented a striated or columnar appearance, and the columns or rays throughout the arch were directed toward a point a

little south of the zenith, like the ordinary coruscations of the aurora. The luminous matter moved *westward*, and the eastern extremity of the arch at length appeared, and ascended toward the meridian. From all which it is evident that the whole meteor moved in a *southwesterly* direction. At 11 o'clock the highest point of the arch had perhaps an elevation of 45°. At that time the component columns or rays became much more distinct and separate, but their westerly motion less manifest, on account, probably, of the great distance at which the columns were seen. The matter of these luminous columns became afterwards blended and uniform.

In the same year, on the evening of September 9th, at half past 8, we saw a similar, though less extensive colonade. It passed at that time through the zenith, and was, as usual, nearly at right angles to the magnetic meridian, but neither of its extremities reached the horizon. There existed the same southwesterly motion as in the arch just described. At a quarter before 9, the arch being in the celestial equator, the eastern extremity was rapidly resolved into about half a dozen columns, and then gradually vanished. These columns, in their form, in their position with respect to the dipping needle, and in the westerly direction of their motion along the arch, resembled those of August 28th. The pillars moved westward, in the direction of the arch, at the rate of about seven or eight degrees in a minute, as we ascertained by observing the motion of one of them from a star situated near the 307° to another situated near the 300°, of right ascension.

1830—Oct. 5th, 7h. 40m. P. M. luminous arc, without columns. Barom. and ther. both rising; gentle breeze from the north. Aurora transient.

Oct. 6th. Aur. at 8 P. M, bar. rising; ther. falling.

Oct. 7th. Aurora 9 P. M. Barom. high, but beginning to fall; ther, falling; wind S. E., scarcely perceptible.

Oct. 10th, rain, slight.

Oct. 17th, aurora. Barom. rising; ther. falling.

Oct. 18th, rain at 11 A. M.

Nov, 20th, aurora; barom. rising; ther. falling.

Nov. 22d, rain.

Dec. 11th, *Irised aurora*. Barom. ris.; ther, falling.

Dec. 12th, aurora; barom. rising; ther. falling; rain on 14th.

1831—January 14th, aurora; barom. high, but falling; ther. low, but rising. 15th, snow.

Feb. 6th, auroral arch, at first curiously undulated. 7 P. M. barom. rising; ther. low, but nearly stationary. No storm followed.

Feb. 7th. Aurora, P. M.; barom. high, but falling; ther. nearly stationary. No storm followed.

March 1st, aurora 7h. 30′ P. M.; bar. high, but stationary; ther. rising. No storm within 4 days.

March 8th, aurora all the evening from 7 P. M. beautiful columns reaching half-way to the zenith; barom. high, nearly stationary. Ther. low—stationary. Very little snow next morning.

March 12th, slight aurora; barom. and ther. falling.
March 13th, aurora; barom. and ther. nearly st.
March 14th, snow on the hills, but not here.
April 1st, aurora; barom. rising; ther. falling.
April 4th, rain.*
June 1st, aurora, 9 P. M. slight; barom. and ther. nearly stationary. No rain under four days.
June 10th, faint aurora; barom. and ther. nearly stationary.
June 12th, thunder shower.
July 31st, aurora; barom. rising; ther. falling; shower next day, and rain the day following.
Oct. 24th, slight aurora, 8 P. M.; ther. and bar. not observed.

The other auroras observed before the year 1835, will be given in a table.

Concluding Remarks.—It appears from the preceding observations, that generally the temperature of the air is falling, and the atmospheric pressure increasing on the day in which an aurora borealis appears. This rule is, I believe new, and it may be of some use, not only to the theorist, but to the observer, by enabling him to anticipate when an aurora may not be expected. The rule would be confirmed by my observations in 1832, 3 and 4; but I have not at present time to compare them. It will be seen, also, that on the day of an aurora, both these changes in the temperature and pressure usually take place, unless the atmospheric pressure is unusually great, or the temperature unusually low. My observations with the thermometer and barometer being, in general, only made at 9 A. M. and 9 P. M., I have been under the necessity of comparing the preceding and succeeding observations; and on this account, many of the exceptions are rather apparent than real, inasmuch as the temperature may have attained its minimum and the pressure its maximum, at an hour different from that of observation. In most instances, soon after an aurora, the atmospheric pressure diminishes, and the temperature rises, and water, either in the form of rain or snow, falls within two days after the appearance of the aurora. It would seem, from my observations, that the storm is less likely to succeed in cases in which the atmospheric pressure has not been increased, or the temperature diminished, previous to the appearance of the aurora.

From my observations on dew, and the dew point, for several years, I have been led to conclude, that the air at the earth's surface, when not already saturated with moisture at the time of an aurora, is much nearer than usual to the point of saturation. How far the presence of water in the higher regions of the atmosphere, in drops or crystals too small to form clouds or produce sensible opacity, may contribute to the aurora, or in what degree electricity may be evolved by the precipitation or congelation, I shall not at present attempt to decide.

In a majority of instances, at the commencement of an aurora,

* Of the aurora observed by me in New-York, April 19th, 1831, see an account published by Prof. Henry, in an article on the disturbance of the earth's magnetism, appended to the report of the Regents in 1832.

the sky has been clear, except in the north; but presently light clouds have been generated in the region of auroral action, and apparently by this action, and have been floated over to the south by a northerly breeze, which generally prevails at the time. On seeing these clouds, I have, in some instances, been induced to look for the aurora, which had not been previously noticed.

It will be seen, also, from my observations, that there is usually a westerly motion, both in the matter of the arch and in the columns which project up from it, and that the arch, probably from this cause, usually becomes deficient first at its eastern extremity. In some instances, however, the columns move east. In one instance, I have witnessed a beautiful exhibition of this intestine motion in an arch, simultaneously in opposite directions. It had the appearance of two composite arches, one behind the other. The component columns were of various colors; those of one arch, through its whole extent, moved east, the others west. They reminded one of two files of soldiers, moving at different distances in opposite directions.

Many connexions which I have observed as existing between the aurora and other phenomena, unquestionably in the lower regions of the atmosphere, the high state of the dew point, the clouds usually developed at the time of the meteor, as well as the analogy between it and auroral clouds, may afford evidence that the meteor is not always as high as has been generally believed, and, especially, that its ponderable material is not, as some have conjectured, metallic, but similar to that of common clouds.

Section IV.—*Auroral or Magnetic Clouds.*

In the present state of the natural history of clouds, it appears to me, that when new and interesting relations are discovered, the adoption of some new nepheological terms may contribute more to the advancement of science, than a uniform adherence to the old ones, which, so far as regards the relation of cause and effect, are often arbitrary. It may facilitate the transition from mere natural history to physical science. As this branch of meteorology is in its infancy, its classifications must generally be founded upon external characters; but the time may arrive, when they may be more generally founded on physical relations.

I have for some time been particularly interested in observing a class of clouds, which, from their position as compared with auroral arches, and from their being, like them, followed by storms, and from their occasionally presenting a similar internal structure, seem eminently entitled to the appellation *auroral*. I at first called them magnetic, from their evident relation to the aurora borealis, and the supposed magnetic nature of the latter. I now prefer a term which expresses a connexion between the two, but not the nature of either.

A long, narrow, horizontal cloud, nearly at right angles with the magnetic meridian, I denominate auroral. If it is a little irregular as to its form or position, it may be called sub-auroral. If homogeneous in its texture, it may be called simple auroral.

When from these auroral clouds there project upwards many narrow and nearly parallel streaks of cloud, nearly resembling in form and position the proper auroral corruscations, or when the cloudy arch itself is, like some auroral arches, striated in the same direction, i. e. in a direction nearly transverse, we may name the cloud composite-auroral.

I proceed to some examples.

1834, Nov. 9th. At 8 P. M. I observed the sky nearly covered with striated clouds, which from their convergence to the east and west points of the horizon must have been disposed in horizontal lines, nearly, if not exactly, at right angles to the magnetic meridian. This was confirmed by their crossing the meridian in that direction. They were of that light, whitish kind of cloud, which can not be distinguished from the matter of some auroral arches; a matter, which, I am convinced is distinct from electricity, though often illuminated by it.

The above mentioned clouds I venture to denominate magnetic clouds, because I have observed them to assume this distinction with respect to the magnetic meridian, so often as to preclude the probability of its being accidental, and have observed that they were associated with, and succeeded by several of the same meteorological phenomena as the aurora borealis. Deferring, for the present, the statement of other points of agreement, I will only mention that both the aurora borealis and this kind of clouds are, when seen at this place, followed by a storm in one or two days. On the evening of the 9th, there was a halo around the moon, which was deficient on one side where these clouds were wanting, showing that they contributed to form the halo.

11th. Rain A. M.

15th. Halo of about 45° in diameter around the moon; manifesting the presence, in the air, of regular crystals of snow, with dihedral angles of 60°. It can be shown that this meteor would be produced by the refraction of such prisms, provided they existed at the time. Now, I have in numerous instances, and in fact generally, observed regular crystals with six pinnate rays, (the principal rays, making angles of 60° with each other,) fall the day after a halo.

16th. Some magnetic clouds observed.

17th. Rain P. M.

18th. Rain A. M. and P. M.

1835, February.—On the 3d, there was here a streak of light cloud, resembling in color a white arch of the aurora borealis, and near by in the same direction. It passed through the moon, and produced a halo of the usual large kind. That it produced it, was evident from the deficiency of the halo on the side where the clouds were wanting. On the 4th, at 9 A. M. the sky was rapidly overspread by whitish, fleecy clouds, rising from the northern horizon. These appear to be nearly allied to the aurora borealis. I have observed that such clouds coming from that direction, and especially at that hour, are generally the precursors of a storm, and that they often overspread the sky in this manner during an auro-

ra, and especially after its dispersion, as though the matter of it had been converted into clouds. In this case, snow came two days afterwards.

March 14th, one seen in connexion with a lunar column.

On the 3d August, at 10h. 15′ P. M., a white arch, resembling that of an aurora borealis without streamers, passed through the star, Alpha Ursæ Majoris. It was about 6° in breadth, and rose a distance equal to its breadth in about 5 minutes. Breeze from the north rather brisk. The arches extended about ¼ across the sky; its width being nearly uniform, except near the western extremity where it was double, a narrower band being in advance of the main one. At 10h. 25′ it was again examined. Then, instead of one arch, that part of the sky between the zenith and the place where the arch had been seen 10 minutes before, was covered as it were with its fragments, numerous white streaks of clouds perpendicular to the magnetic meridian, apparently converging towards a point near the western horizon, near which the clouds had become dark and more opake, as if from condensation. These streaked clouds were evidently of the character of those which I have before, for want of a better name, called magnetic, from their position with respect to the magnetic meridian. I believe them to be connected with the same causes as the aurora borealis, with whose arch they agree in direction.

On the 11th, about 8 o'clock P. M., one or two streaks of whitish cloud nearly at right angles to the magnetic meridian. About 12 hours afterwards, rain in small drops and a rainbow.

On the 17th, at 9 P. M., a long dark cloud near the northern horizon, its length nearly east and west. Clear sky above and below it, but no brightness as of an aurora. A shower commenced about 23 hours after this.

None were seen in September or October.

Nov. 5th, Sub-auroral clouds at 7 P. M. Real auroral arch in 3 hours afterwards; rain in 47 hours.

Nov. 18th, Composite auroral clouds, so complete as to merit the appellation of an aurora seen in the day time. In the course of the day, several complete and regular arches of white cloud ascended successively from the north; some of them were seen near the zenith.

These, as well as numerous shorter striated clouds, had all the same arched form, and E. & W. position as the proper auroral arches. One of these complete day arches which extended each way to the horizon was seen at 10h. 30m. A. M. It was then about 30° high, its width was uniform, but it appeared wider at the northern part, where it was about 10°, like some of the auroral arches. But, what was still more remarkable, it resembled the auroral arches in its columns of streamers.* For, the superior or convex side of the arched cloud was beautifully bristled with cloudy fibres, (so to speak,) radiating in a direction nearly at right

* My friend, the Rev. Dr. Potter, who was not biassed by any preconceived theory, informed me afterwards that he was struck with the analogy.

angles to the arch; their lengths various, their terminations not abrupt, but fading away like proper streamers with which they also agreed in the other respects above mentioned. In their relative width and density as compared with the arch, they also agreed with auroral coruscations. They thus formed a kind of superior penumbra to the arch, having about twice its width, and extending along about two-thirds of its apparent length, very distinct in the middle; their relative faintness accounts for their not being seen at the most distant parts of the arch.

They were not exactly perpendicular to the arch, but inclined a little more or less to the east, perhaps 10°, and rather convex on the east side.*

Rain fell on the next morning at ½ past 8, and snow about half a foot deep on the 23d.

But the most remarkable phenomena about this time, were the extraordinary *red aurora* of the preceding night, and the brilliant aurora of the succeeding evening. *These auroral clouds seemed to form a vinculum between them, and to manifest the presence of the auroral agency for nearly two nights and the whole of the intermediate day.*

Nov. 26, *Composite auroral clouds.* These were seen between 7 and 8 A. M. They were first seen just after day light commenced, and seem to have been a continuation of the aurora which had been visible the same morning. One of the horizontal clouds was bristled at the upper edge with numerous parallel fibres inclined to the east about 45°. Snow P. M.

Dec. 11th, *Auroral clouds composite and simple.* They were seen at noon, both in the north and south, and continued most of the afternoon. At one time, there were radiations from one of these like those seen on the 26th. An aurora borealis had been seen the evening previous, and snow fell in 19 hours after the appearance of these clouds.

Dec. 12th, *Sub-auroral clouds, succeeding storm, slight.* The clouds were seen in the afternoon, and a few flakes of snow fell the next afternoon at 5 o'clock.

Dec. 17th, *Sub-auroral clouds.* So called in this instance because they were not exactly at right angles to the magnetic meridian, but inclined a little towards the N. W and N. E. They extensively overspread the sky for some hours in the afternoon. A little snow on the 19th, between 30 and 40 hours after the clouds.

Dec. 21st, Simple auroral clouds at 3 P. M.

Dec. 22d, *Composite auroral clouds.* These were seen at 10 A. M., as well as before and after. The component radiations made an angle of about 50° with arches, the eastern ones being inclined toward the east, and the western ones toward the west. Snow on the 23d, 25 hours after composite, and 44 after the simple aurora clouds.

Dec. 24th, Sub-auroral clouds P. M.

* In New-York, I once observed the streamers of an aurora borealis, to be curved in the same direction. In that instance, there was a westerly wind at the earth's surface; and, in the present, instance, there was one at the height of the cloud.

The above are the only instances of auroral clouds observed by me between Nov. 1834, and Jan. 1836. It may be seen that they were more numerous at those seasons of the year in which crystals of snow might be expected to form in the middle regions of the atmosphere, and the matter of several of them was evidently connected with that of halos. The radiations are generally in such a position as to indicate but little if any dip. These radiations, like those of the aurora not unfrequently exist without the east and west arch, and sometimes extend nearly across the sky.

The foregoing arches and radiations belong to the cirrus class. There are other clouds which occasionally ascend from the north, having the southern edge in an east and west direction, and which are not narrow. These are probably of a similar nature; there are others which seldom assume any determinate direction with respect to the meridian, and which I have not included among the proper auroral clouds according to the above definition, though they are connected with auroral action. They are light and white flocculent masses, like wool, which often float toward the south, during an aurora borealis, as also about the time of halos, and before the descent of regular crystals of the stellate kind. There were seen at 8 o'clock, on the evening of the 25th Feb. 1836. At one half past one next morning, a corona was seen around the moon, and at 11 A. M., snow began to fall; six inches fell, nearly all of it in thin regular plates. The snow commenced falling 23 hours after these flocculent clouds, and 9h. 30m. after the corona. This, with other observations which will be compared, shows that clouds of the auroral character, consist of crystals at a greater height and in an earlier stage of formation, than those which produce halos; and that the former, though they may coexist with the latter, usually precede them, and are converted into them. This floculent auroral matter seldom assumes any determinate position with respect to the meridian, and is not in long stripes. I have, however, seen one remarkable exception. It was during the aurora borealis of April 3d, 1820. The northern sky was illuminated near the horizon, but the cloud which detached itself from the whole extent of the luminous arched segments, though beautifully white, was not more luminous than many other white clouds seen at night. As it floated toward the zenith, it resembled an immense cylindrical roll of the whitest wool, of a breadth perfectly uniform, and of a length extending from the western horizon to within 45° of the eastern. When it had arrived at the zenith, it disappeared by moving endwise to the west. Nearly or exactly at the same hour, another individual, nine miles farther south, saw, as he represented it, a similar smoky appearance, rising from the eastern horizon to the zenith, and then proceeding westward.

All those auroral clouds seen since Oct. 30th, 1832, will be given in a table, exhibiting the state of the barometer and thermometer, and the time of snow or rain. I shall only describe those which were seen Nov. 29th, 1832. As this appears to have been the first time in

which the auroral character of these clouds was distinctly recognized in the journal, and as these were of a regular character, this notice will be extracted from it without alteration and nearly entire.

"Nov. 29th, at 10 P. M., I observed a remarkable striated appearance of the clouds, which, from the direction of the streaks, I believe to be of the same nature as the *aurora borealis*. I cannot doubt it, as they were all exactly at right angles to the magnetic meridian; those near the horizon, both at the north and south having the same curvatures as the luminous arch of an aurora borealis would, at their respective heights. I had not observed any aurora borealis; yet these clouds had the same general appearance which I have observed in the clouds which suddenly overspread the heavens after this meteor. There appears to be a more intimate connexion between this meteor and clouds than has been hitherto noticed.

Is there not a connexion between the cause of the aurora borealis and the cloudiness of the sky, which I have of late frequently observed to take place about 10 o'clock, P. M., when it had been clear at nine.

From the intimate connexion of the *aur. bor.* with clouds, I think the aurora must frequently be lower than has been estimated; this is confirmed by the sounds that have sometimes attended it. If it were not at such times at a moderate height, the sounds would be inaudible, not only on account of distance, but from the extreme rarity of the air at the heights at which they are generally supposed to be situated. The streaks this evening were numerous, perhaps 30 or 40.

At ¼ before 11, I saw some very light streaks in a clear part of the sky; in fact most of the sky had been clear. These could not have been created by the moon's rays. They were composed of a substance having exactly the same appearance as the magnetic arch which I saw in 1820, and exactly like small ones which I have frequently seen since, during an aurora borealis. The wind was easterly.

This evening the thermometer was *lower* and the barometer higher than they had been in four days, i. e. since the evening of the 25th. During the night it snowed a little, and the next day it rained all day. I consider this state of the thermometer and barometer and the subsequent rain and snow as affording a strong confirmation of the foregoing opinions, as to the nature of the clouds seen last evening."

It would be easy to prove that the auroral or magnetic clouds are much higher than ordinary clouds. They are usually in the middle regions of the atmosphere, between that of ordinary clouds and the ordinary region of the aurora borealis. Sometimes there are seen short, thick and rough parellel columns at right angles to the arch. These as well as those which sometimes compose the arch correspond to the component parts of columnar arches of the aurora borealis, whilst the narrow radiations are the streamers. The latter are usually inclined to the east on the eastern side of the arch, and to the west on the western side; to such a degree

as to indicate that they are nearly or exactly horizontal, and are in the magnetic meridian. They may be regarded as magnets without dip, or as it is termed, inclination. The short thick columns, may have the regular dip.

The foregoing views would be strikingly confirmed by interesting composite auroral clouds which have been seen in Jan. and Feb. 1836, and which were no less remarkable than those of Nov. 18th, 1835. The observations of these months would also confirm our views with regard to the intimate connexion between the aurora borealis, auroral clouds, halos and coronæ, and the dependence of all of them on regular crystals of snow. But these facts must be reserved for a future article. It is to be hoped that observers will direct their attention to these points, and that especially, they will record all instances in which arched or straight clouds, with regular edges, are nearly at right angles to the magnetic meridian, especially at their highest points, if they are arched; also the position of their radiations, if they have any, stating the positions of those on the east and of those on the west side of the meridian. It would also be interesting to have a record of those narrow streaks in a north and south direction, which are of the same nature as those which project up from the east and west arches, or which coming from lower arches, cross the visible ones. These north and south arched streaks are sometimes seen when the east and west clouds are invisible. It is to be hoped, that the academies of this State in their reports to the Regents of the University, will notice these phenomena; as it will contribute to the advancement of science.

At this place, the magnetic north is about 7° west of the astronomical north; and the dip may be about 74°. In determining whether a streak of cloud is actually in a north and south direction, we should consider whether the highest part of it (if it is complete at the horizontal part of it,) is in an east or west direction. If so, the cloud has a north and south position. If it is so short that all of it is inclined to the horizon, we should then consider where the highest part would be, if the arched streak were prolonged, preserving its arched form.

Section V.—*Connexion between the aurora borealis and the crystallization of snow.*

That crystals of snow more minute and simple than those which occasion halos, and usually too minute to produce sensible opacity, are always present in the atmosphere, above the region of ordinary clouds, during the time of this meteor, we are induced to believe from a comparison of the results of the foregoing observations. Several of these results are believed to be new. The following are some of the circumstances which have a bearing upon this question.

1st. Those seasons of the year and those hours of the night when it most frequently occurs, are favorable both to the presence and congelation of aqueous vapour in the atmosphere.

2d. The clearness of the sky, which at such times is usually either general or total.

3d. The usual northerly breeze at the earth's surface, and the northeasterly breeze in the high region of the meteor.

4th. The usual depression of the temperature, at those heights at which thermometrical observations are made.

5th. The clouds which usually succeed the meteor immediately or on the same evening, and which often present the appearance of being continuous and identical with the auroral matter.*

6th. The snow that in the weather sufficiently cold, almost universally follows the meteor, after such an interval as the simple crystals might be expected to require for aggregation in more complicated groups and descent to the earth's surface.

7th. The rain that almost universally succeeds it, after about the same interval, whenever the temperature of the lower atmospheric strata is sufficient to melt falling snow.

8th. The coexistence of halos with regular crystals, the connexion between halos and auroral clouds, and between auroral clouds and vertical lunar columns,† and the analogy between auroral clouds and the aurora borealis.

9th. The pinnate appearance of composite auroral clouds, which appear (so to speak,) like large crystals.

May not this expression be used as something more than a figure of speech? What is so likely to produce this structure, so regular and yet so complicated, as the polarity of component crystals, whether that polarity is or is not magnetic?

May not the ponderable material of the colonnade of an aurora borealis consist of similar groups of crystals, formed either from the vapour of water or from some lighter, less condensible and more magnetizable vapour in the upper regions which crystallizes at the same time and under similar meteorological influences with the former, and the crystals of which are magnetized by that electricity which passes from one stratum to another whenever there is a sufficient difference in their electrical states and a sufficient conducting power in the medium.

It might seem extravagant to speculate respecting the possibility of communicating much magnetism to ice. It may, however, be impossible from those complicated and irregular groups of crystals which we can subject to experiments, to decide what properties may not be possessed by those most simple and perfect of all icy crystals, which in the form of minute spiculæ are probably generated in the extremely cold and dry air of the upper regions of the atmosphere. It has been already shown that extreme cold is conducive to the regularity of this process in the more complicated groups.‡

Perhaps this might explain the inferior regularity of some auroral clouds, which, being formed in lower regions and composed of

* The existence of detached portions of auroral matter which are occasionally seen to float away from the rest of the meteor and to retain for a while its luminous property, has induced some philosophers to admit the probability of an actual combustion.

† See observations on the luminous column which was seen on the 14th of March, 1835.

‡ See remarks on the luminous column of December 1833, and the cold of January 1835.

crystals more complicated and irregular, are less obedient to the directive power of the earth. The absence of dip in the streamers, is what we should expect from the density of the air at their elevation. Should this theory of auroral clouds be established, we should be justified in resuming for them the appellation of magnetic clouds which I first applied to them, and which on some accounts is preferable, inasmuch as there are clouds which are evidently dependant on auroral action, but which do not immediately form long polarized bands. Perhaps these bands, during their descent, and after the completion of crystallization, lose their magnetism, and become gradually converted into common unpolarized clouds.

Whether all the electricity and magnetism concerned in auroral action is developed during crystallization it is perhaps impossible to determine. In experiments with the solar microscope, I have been struck with the analogy between the polarity of crystals and that of magnets, a polarity evinced by the rotation of the smaller groups, in their approach to the larger and more complicated ones. The extent of rotation produced in one group by another never exceeded 180°. I have also detected a still more interesting analogy in the influence which a large group exerts upon the formation of smaller ones at a considerable distance. There was a real *induction*. This was evident from the fact that a large nucleus spread more rapidly than a small one, advancing like a wave, overtaking and absorbing those waves which had begun to spread from a smaller nucleus. This induction, or the influence of a crystalline mass, in disposing particles and small crystals which are in its vicinity, but at some visible distance from it, to unite *with each other*, was still more evident from observing on the screen the existence and motions of scattered clusters composing a darkly dotted border or penumbra, skirting the darker image of the general crystalline mass already formed, and regularly advancing before it across the screen. Perhaps we should hardly be justified in calling such phenomena magnetic; yet it would be easy to show that these and many other phenomena exhibited by microscopic crystals are regulated by laws strikingly analogous to those of magnetic induction.

It may be well, in this place, to give a more detailed account of these microscopic phenomena of crystallization, as the principles developed may have an interesting relation to the meteorological subject which we are examining.

One of the most convenient solutions for exhibiting crystallization with the solar microscope is the tincture of camphor. But as this, when the sky is clear and the sun at a considerable altitude, crystallizes almost instantaneously, it occurred to me to try it diluted. With an intense solar radiation, a mixture of five parts of alcohol and one of tincture of camphor exhibits beautiful intestine motions in the nascent crystals. The elementary crystals first aggregate in small masses or elementary groups, which then move toward similar groups, or toward the general mass of that which is already crystallized, thus forming groups more compounded. A similar appearance is presented by the nitrate of silver. When

a strong solution of tincture of camphor is placed on a plate of mica, and exposed to intense radiation, the crystallization is so rapid that the different orders of groups are not obvious. Also in the muriate of ammonia, sulphate of magnesia and sulphate of soda, union of the elementary molecules with the most complicated groups generally appears to the eye direct, the larger crystals seeming to grow by continued extension, in consequence of increments so small as to be insensible; yet in such cases also, more elementary groups are undoubtedly first formed, though so small as to be imperceptible. When the sky is overspread with thin clouds, the more elementary groups may be seen in a *saturated* solution of camphor. When the tincture of camphor is employed, and the rapidity of evaporation properly regulated by adapting the strength of the solution to the intensity of solar radiation, we may witness the following interesting phenomena.

Whilst the image of the general mass of crystals is rapidly extending like a dark cloud across the screen, the small component groups form a penumbra which advances before it. These perform various evolutions, for which their distance from each other affords sufficient space. These evolutions consist of various combinations of progressive and rotary motions. A small group in approaching a larger one, and a large one in approching the general mass, appear disposed to present a certain side or pole. If this pole happens to be already in the requisite direction, no rotation is necessary, and the progressive motion is alone exhibited; if the pole is in the opposite direction, a semi-rotation takes place during the approach; if the pole is 90° from the pole of the attracting mass, then a quarter of a revolution is necessary. This hypothesis appears to be consistent with all the observed phenomena, and accounts for the various motions which are at first sight so anomalous. According to this theory there should never be a complete rotation; and I have never observed such a rotation; nor more than half a rotation, except in cases where a mass of crystals was within the sphere of influence of *more than one* group, and was subjected to their influence successively. In one instance, a small group appeared to be repelled by a large one, probably because similar poles were near each other, and the nearest pole of the larger crystal in the direction of the axis of the smaller.

Without affirming that this is magnetism, I am strongly impressed with the analogy between magnetic forces and those concerned in crystalization. We may consider the particles of the dissolved solid to possess opposite properties on opposite sides, which may be called poles; and that when two particles are brought within the sphere of mutual action, similar poles repel and dissimilar poles attract each other. But whilst in this state of solution, the particles are at such a distance as to prevent their approximation. They remain stationary like small magnets attached to pieces of cork, and distributed at intervals of some rods through a lake of tranquil water. Now when a fluid containing a crystallizable substance is evaporated to a certain extent, the distance of the particles is diminished, and the tendency of their opposite poles to ap-

proach exceeds the cohesion of the fluid, and union soon commences.* Evaporation would produce similar effects in the imaginary lake; and if we conceive the magnets as distributed at unequal distances, with poles in various directions, those which happened to be nearest, or those whose dissimilar poles were turned toward each other, would first unite in pairs, and these again unite either with single magnets or with other pairs, and form small clusters. The resultant poles of each compound magnet would then be acted on by those of a neighboring cluster, or those of a larger compound magnet, which may be conceived as already formed on one side of the lake, by the union of some thousands. The analogy between these phenomena and those of crystallization is obvious.

Again, a larger magnet exerts not only a stronger attractive power, by which it draws to itself small magnets at a greater distance, but also exerts a stronger *inductive* influence, by which it more powerfully disposes the smaller magnets to unite with each other. This is precisely what takes place in crystallization. We have already stated in the preceding article that a large crystalline nucleus extends more rapidly than a small one, and that from this cause the component dots of the penumbra are, after a few combinations with each other, overtaken, and, as it were, completely absorbed by the general wave. As a large and strong magnet strengthens the magnetism of two small needles or two iron filings, or two clusters of iron filings, and disposes them to approach each other and cohere, so a comparatively large microscopic crystal evidently gives to small microscopic crystals, either simple or compound, a mutual tendency to aggregation. Crystallization, then, appears to depend upon the polarity of particles and groups of particles, a polarity which is strengthened by *induction*, an induction which is regulated by laws strikingly analogous to those of magnetic induction. That crystals possess some kind of polarity, must have been conjectured; but perhaps no one has before attributed to them any proper inductive influence, still less established it by actual observation.

Now, as the crystals of camphor, and other substances which manifest similar properties during crystallization, are never seen to influence each other in this way when they are large and already formed, as one large crystal (for example,) removed from the medium where it is liable to receive increments, and supported on a pivot, is never seen to attract or repel a similar one, or produce rotation in it, and as such a crystal so circumstanced never imparts to another these effects upon a third one, already formed and removed from the solution, it is less unphilosophical than would at first sight appear, in the absence of any direct proof of the magnetism of ice, to attribute magnetic properties to the microscopic nascent crystals in the upper regions of the atmosphere.

I have made two or three experiments on the crystalization of ice near a magnet; but the results as yet are not sufficiently numerous

* It is not improbable that the solar light may also be concerned.

and unequivocal, to be decisive in relation to the magnetism of these crystals.

On the 5th of February, 1836, at 8 A. M., barom. 29.96, ther. —12, I breathed on a magnet which had been previously blackened with printer's ink, from the north end to the middle. A crystallization took place in a space less than half an inch square, about half way from the pole to the neutral section of the flat bar. The crystals were all arranged in the form of fibres, all perfectly straight and parallel, about 20 in number, on one of the flat sides of the bar, nearly at right angles to the magnetic axis, but slightly inclined towards the nearest pole. In another experiment, there was no determinate arrangement. I shall make the experiment with hoar frost, when the state of the air is favorable. One experiment was made with the magnet in freezing water. The only indication of magnetism, was in a spicula of ice which shot towards the pole nearly in the direction of the magnetic axis. Its length was double that of any other. On the whole, the results are as yet rather ambiguous, as might be expected under such circumstances.

That the light of the aurora borealis may be evolved by the crystallization of ice, in the rare and cold air where this meteor exists, is rendered probable by an experiment of Prof. Pontus, of Cahors, who finds that water just before its congelation by the evaporation of ether, within the receiver of an air pump, emits sparks, visible even in the day time, and that this light always indicates that crystallization is about to commence.*

The circumstance that the light is emitted *before*, rather than *at* the time of the apparent commencement of crystallization, tends to confirm our hypothesis respecting the aurora borealis. For undoubtedly the crystallization within the receiver must commence some time before ice is seen; and these invisible crystals are, in their form and properties, more perfect than visible ice, and in their nature and circumstances more similar to those crystals which first form in the atmosphere. Let us examine in order the different parts of the above proposition. From our experiments on camphor and other substances, it appeared that the crystals first discerned were microscopic and isolated; these again unite to form a multitude of groups more compounded, but still invisible to the unassisted eye, and still separated by spaces so considerable, that the different orders of crystals resemble a mixed universe of suns, planets and satellites, in the circumstance that the attraction of the smaller body for a molecule in its vicinity, exceeds that of the larger body for the same molecule. So that groups of isolated crystals of different orders of simplicity were simultaneously forming, and receiving successive increments by appropriating to themselves the surrounding matter. There can be little doubt that this is the case in the crystallization of ice; and that all these complicated operations are performed whilst every part of the water appears to the ordinary observer to be in the liquid state. We have

* See American Journal of Science.

shown, then, in the first place, that the actual commencement of crystallization must be some time anterior to the first appearance of congelation, and that analogy indicates the existence even of several intermediate stages.

In the second place, we have said that the invisible crystals are, in their form and properties, more perfect than the visible ice. The pellicle of visible ice when thus formed is amorphous; its component crystals must be more regular. This is what we always observe in the smaller and more simple as compared with the larger and more complicated of visible icy crystals, whether seen on the surface of tranquil water, on the panes of our windows or in falling snow. If, then, the molecules of water tend, in freezing, to assume a determinate and peculiar arrangement, the true type is to be sought in microscopic crystals; and if from its relation to electricity and magnetism, ice possesses any peculiar properties, it is in these crystals that those properties must be expected to exhibit their elementary, unmixed and perfect character.

In the third place, we have said that the invisible crystals which form before the visble congelation of any portion of a mass of water, are in circumstances more similar than visible ice is, to the crystals first formed in the atmosphere at the height of the aurora.

The crystals in the elevated region of the aurora borealis must be formed from an exceedingly rare vapor, whose molecules being at a considerable distance from each other, and thus under the most favorable circumstances for gradual aggregation, might be expected to form microscopic crystals of ice of the most perfect character, more perfect than those formed in water, and incomparably more so than the latter, when accumulated in masses visible to the naked eye. They are at first simple, and liable to unite with each other in a regular manner, and form regular crystals of several grades of complexity, before their character is changed by union with any amorphous mass of snow, or by the suspension of the electrifying, (and shall we not say magnetizing?) process.

In being thus nascent, isolated and comparatively simple, they must resemble the microscopic crystals, which, before the obvious congelation of water, emit sparks. This is a mode of shining which of itself manifests action in isolated points. This action and this light must be considered electrical; and if this electricity of crystallizing water is ever connected with magnetism, or ever converts the crystals of ice into magnets, it must be during the perfect crystallization in the elevated regions of auroral action, where the circumstances are most favorable to the perfection both of the process and the products.

It is however highly probable, that this meteor not unfrequently extends to the lower regions of the atmosphere in high latitudes. Hansteen has frequently heard the sound, and Sir John Ross, in a communication to the British Association for the advancement of science, affirms that he has frequently seen the meteor between himself and an iceberg or ship not far distant.* This might have been an illusion; but the low temperature and rare vapour of high lati-

* See Silliman's Journal, vol. xxix, p. 348.

tudes, as well as the vicinity of one of the magnetic poles, might make the inferior extremities of the magnetic columns lower than in our latitude. It may be worthy of consideration, that those regions of snow are in an eminent degree regions of the aurora borealis, and that the magnetic poles of the earth are situated directly below those parts of the atmosphere which, at a given height, possess the minimum temperature. It might be an interesting question, in what degree the aurora borealis may be a cause as well as an effect, of the earth's magnetism.

The fact that this meteor, when brilliant, sometimes appears almost simultaneously in distant countries, is not incompatible with the theory of its atmospheric origin. The argument would be equally conclusive against the atmospheric origin of the snow or rain which almost invariably succeeds it, and which must consequently be nearly simultaneous in countries equally distant.

Again, that it should appear in summer, is not surprising, when we consider the moderate height of the region of perpetual congelation; and on the other hand, that it should appear in the relatively dry air of winter, is not surprising, when we reflect that aqueous vapour always exists in the atmosphere. Thus, on the one hand, halos may be produced in mid summer, and on the other, ice may evaporate in the coldest days of winter.

The effects of this meteor on the needle, which have been witnessed at this and other places, show that this is a magnetical, and not a mere optical phenomenon. This effect is as easily explained on the supposition of the crystalline as of the metallic nature of the magnetic columns. These are known to be nearly parallel to the dipping needle. This may be inferred, not only by producing their directions, but by observing their actual point of meeting when they form an auroral corona, a phenomenon which I have witnessed about six times, and twice on the same evening. The position of this point is however by no means constant at the same place, at a given epoch, nor even during the same evening. The same is true of the radiant point of shooting stars, which might be shown by numerous observations here and elsewhere, to be intimately connected with the aurora.* Indeed they both often move west, independently, I suspect of the earth's motion. May not the motion of this point, and the change in the position of the magnetic columns, be referred to the mutual action of these atmospherical magnets? Might not the columns above the horizon be deflected even by those below it, according as the auroral action in the northeast, or that in the northwest, happened to prevail? It may be worthy of remark, that in those instances in which I have preserved a record of the situation of the auroral crown, it has been on the east side of the magnetic meridian, so as to indicate a westerly variation of the streamers, and has been usually attended by a diminution of dip or inclination. Whilst in the city of New-York, on the 19th of April, 1831, at 9 P. M., I observed the point of meeting to be at δ leonis. The altitude of

* It will probably be found, that shooting stars, (which frequently appear in a state of the atmosphere in which auroras do,) generally move in a direction nearly corresponding to that of the dipping needle.

this star was 70° 25′, its azimuth 11° 27′ east; yet the dip of the needle at that place was 73°, and its declination, or the azimuth of the magnetic meridian, only 6° or 7°. In the preceding section is stated an instance in which the azimuth of the auroral corona was still greater, and in which the dimiution of the azimuth was attended by an increase of altitude. These observations indicate such a connexion between the dip and declination, or (as it is frequently called,) variation, as might be produced by the mutual action of the columns. The results cannot be wholly attributed to any error of observation, which could not have been sufficiently great. Moreover they were similar in the two cases, and the observations were made previously to the conception of the foregoing theory.

May not all those apparant variations of terrestrial magnetic intensity which are observed during auroras, be really variations of atmospherical magnetism, and result from the action of these atmospherical magnets on the needle, which will then be simultaneously acted on by the magnetism above and that below the earth's surface?

Will not this explain all the variations in the intensity indicated during auroras by horizontal needles? Prof. Henry, has detected an increase of the horizontal intensity on the evening of an aurora, but before the time of its appearance, and a diminution of this intensity when the aurora had attained a great height. This confirmed the remark of Prof. Hansteen, who had, without his being at the time aware of it, declared that the intensity generally begins to increase just before an aurora, and to diminish when the meteor appears.

Now, does it not appear from the inclination and probable height and distance of the columns, that when they are below and near our northern horizon, their upper extremeties, whose polarities are of the opposite nature to that of the magnetic pole north of us, will be generally nearer to the needle, and influence it more than their lower extremities; whilst the reverse will be generally true, when they are above the horizon? The difference in their effect would be most remarkable when the aurora is high and active, and passes the zenith, as was the case on the 19th of April, 1830, when I observed it to form a corona as far south as New-York, whilst Prof. Henry was making these observations at Albany. According to the above view, the vibrations of the horizontal needle might be expected to be more frequent when the magnetism of the earth and that of the columns conspire. But when the latter are at such a height, that their inferior extremities affect the needle more than their superior extremities, the earth and the atmospherical magnets would have opposite effects, and render the vibrations less frequent. According to this view, the resultant intensity of the action of these two kinds of magnets on the needle, would not be constant, though it would be less variable than might appear to be indicated by the horizontal needle which Prof. Hansteen employed. So far then as we are acquainted with the facts in relation to the horizontal needle, we should not feel justified in concluding

from them with this experienced and indefatigable observer, that "a short time before the aurora appears, the magnetism of the *earth* is apt to rise to an uncommon height," or that "the polar lights are the effect of an uncommonly high magnetic intensity, which intensity lets itself off, as it were, by the polar lights, and thus sinks under its common strength."

We have considered the variation of the resultant intensity, so far as it is real, as the effect of magnets in the atmosphere. My friend, Prof. Henry, who is distinguished for his magnetical researches, has (without taking this view of the subject, or adopting any hypothesis in regard to the cause,) correctly shown how this apparant variation in intensity may be referred to a change in the dip. According to the hypothesis which I have suggested, whilst the magnetism of the earth itself may not be sensibly affected, both the magnetic dip and resultant intensity should exceed the mean, when the meteor is at a certain distance north, and both should be less than the mean when it has advanced south to within a certain distance of the place of observation. It would seem, that the upper part of the meteor is not far from the horizon when this change of signs takes place; but it is easy to see that the requisite altitude may vary somewhat with circumstances, as the distance, elevation length, &c. of the columns.

Will not the action of atmospherical magnets explain the diurnal variations of the needle? From observations made by Gay Lussac, at the observatory of Paris, it is shown that on those days on which the aurora borealis appears in some countries in the northern circumpolar regions, the needle at Paris always deviates toward the west in the morning, and toward the east in the evening these deviations often amount to 12′ or 15′.* Now as a reduction of the temperature of the atmosphere conduces to the aurora, and as from the simultaneous appearance of the aurora in different places, it appears that other favorable circumstances often arise almost simultaneously through a great extent of the upper strata of the atmosphere, there is reason to believe that when the aurora is active near the pole, there is some auroral action far south of it. This appears as accordant with theory as with observation; when we reflect upon the facility with which electrical and other changes are transmitted through the rare and good conducting air of the upper regions. Then let us consider what might be the diurnal causes, and what would be the diurnal effects of an auroral action below the northern horizon of Paris.

The alterations of day and night succeed each other by a westerly motion. The atmospheric vapour is alternately heated and cooled by the presence of the sun. During the night, crystallization must take place in the upper regions; and during the day the crystals if not abundant, will be re-dissolved. The former we have considered a magnetizing process. In the morning those magnets which can effect the needle at Paris, will be chiefly in the regions of night in the northwest; and their nearest poles conspiring with terrestrial magnetism will deflect the needle toward the west.

* Pouillet Elemens de Physique et Meteorologie, IV, 366.

In the evening they will for the same reason be in the regions of night in the northeast, and will, for the same reason, deflect the north end of the needle toward the east. There is reason to believe, that other less important diurnal changes might be explained on similar principles.

That the withdrawal of solar radiation may have an influence on the crystallizing and magnetizing process, independently of its calorific effect is not improbable; but on whatever principle the effect may be produced, I believe it to result from an action on the atmosphere, and not as has been hitherto believed from an action upon the earth. The diurnal variations have been referred to the influence of the sun's rays in heating the different sides of the earth in succession, and thus diminishing their magnetism. This can have no effect in regions covered with snow unless this substance in its ordinary state is magnetizable. Again, it is found that the diurnal variation is zero, when the sun is on the magnetic meridian. But from the length of time required to heat even the naked soil to any sensible depth, it is evident that its isothermal points cannot be then symmetrically situated with respect to the magnetic meridian; whilst on the other hand, those parts of the high regions of the atmosphere which are equally exposed to the direct influence of solar radiation, or equally deprived of it, may at that time have a situation more nearly symmetrical with respect to this meridian.

The foregoing explanations will apply, whatever be the substance of whichwe consider the atmospheric magnets to consist, provided we admit (what experience abundantly establishes,) the influence of night in their production. It is an interesting fact, that the aurora usually appears at that hour of the night, when the solar radiation has been recently withdrawn from that stratum of atmosphere in which it is situated. If some kind of auroral action continues all night, especially in regions far north of the needle, then the easterly declination might frequently continue till morning, as has been sometimes observed.

On the above mentioned principles, will probably be explained the southerly motion of auroral arches, and the lateral translation of both them and the columns in a westerly direction. The westerly motion is at this place (and I believe elsewhere,) usually observed; the southerly motion almost universally, both here and elsewhere, at least in the temperate regions of the northern hemisphere. Both these motions correspond with the progress of the refrigerating influence.

With this motive influence we may consider another to be combined, viz: the influence of *induction* on the formation of crystals. This last may occasionally preponderate, and thus produce an easterly motion of lateral translation in the columns; in other cases it conspires with the apparent diurnal motion of the sun in increasing the velocity of the westerly motion of the columns. For the illustration of the influence of induction in producing this motion, the reader is referred to the experiments on crystallization before detailed.

This lateral motion sufficiently resembles that of the edge of a crystallized mass, as shown on the screen of a solar microscope.

In the case of the column, however, the lateral motion does not increase the width, because the object is visible only by electrical light, and that may be evolved only during the process of crystallization. When the column appears stationary, it is moving nearly in the direction of the visual ray.

If this view is correct, the apparent motion is an illusion. One column is continually producing another, similar and contiguous to itself, by contracting on one side and dilating on the other.

This continual development of atmospheric electricity and magnetism in points successively farther and farther west, may account for the earth's magnetism on electro-magnetic principles; as on these principles, a circulation of electricity from east to west will explain the existence of north and south poles. The aurora australis, which is frequently seen in the southern hemisphere, will produce a similar effect.

When we consider the influence of continents and other causes, on the production of snow, it is not impossible that the aurora borealis and aurora australis with their southwesterly and northwesterly motions, may explain the number, situation and progressive motion of the earth's magnetic poles.

We may be pardoned in making a remark on the existing theories of the aurora borealis. It will be generally admitted that they have an exceedingly slight foundation.

Professor Hansteen believes that "the polar lights are an expansible substance, which in regions surrounding the magnetic poles, is continually issuing from the surface of the earth." That this able philosopher should be compelled to make a supposition so gratuitous, shows the obscurity which rests upon the cause of this phenomenon. He refers the unusual coldness of the air before an aurora, the slight opacity which is apt to arise during its progress, and the polar fogs that are peculiarly prevalent where this meteor prevails, to the hypothetical refrigerating influence of these imaginary emissions.

The theory which I have proposed will explain, at least the connexion of these phenomena with the aurora by the known or probable properties of materials actually existing in the atmosphere. Before seeing his paper, (which was not till the day of the completion of this,) I had established its connexion with cold, but with cold that is most intense at the earth's surface one or two days before the appearance of the meteor.

I have seen no reason for attributing this meteor as some do, (and among others Captain Ross,) to the reflection of the sun's light from circumpolar ice and then from clouds "aloft" in the atmosphere. How is this consistent with the sound sometimes heard? This was distinctly heard many years since, by the venerable president Nott, as he first informed me, when we were observing an aurora which was very brilliant, and produced what he considered a similar, though less distinct sound. He compared the sound to the rustling of silk. I need not say, that he would not be likely to be deceived in regard to the existence or source of the sound. It seemed to me like that or the sound of a distant cataract.

I have considered the light as developed in the atmosphere and among crystals, generally too minute to constitute visible clouds, or sensibly impair the transparency of the atmosphere. That there exist at such times no clouds capable of bringing, by successive reflections, any sensible quantity of light from the circumpolar regions, is evident from the fact, that the brilliant matter of this meteor reflects no sensible proportion of the light of the stars, and often enfeebles their brightness only in the same degree that it would if situated beyond them; and on the same principle, i. e. by diminishing the relative vividness of the impression on the retina. It is well known that the stars are distinctly visible through the luminous matter. When the matter of the arch or of its columns consists of opake clouds, these we have called auroral or magnetic clouds, which are less luminous than the aurora borealis.

It may, however, be conceded, that though observations have not generally shown any sensible opacity in the auroral matter, yet it is possible that the crystals on which we suppose the phenomenon to depend, may reflect a portion of light too small to be detected by the methods hitherto employed. This would however be far from confirming the optical hypothesis above alluded to. I have referred to the light of the stars. Biot could not detect in the light of the meteor the least trace of those physical properties which characterize reflected light.* Yet the hypothesis given by that distinguished philosopher himself, in his Prècis Elementiare, though generally received, is scarcely less objectionable.† He considers the aurora as depending on the transmission of electricity through metallic particles floating in the air, though for the explanation of some of the phenomena he is compelled to invoke the aid of actual combustion.

When we consider all the meteorological facts which have been above stated, in connexion with the analogies alluded to, it would seem more probable that the aurora borealis depends upon crystals of snow, which are known to exist in the atmosphere, than upon metallic substances, whose existence requires to be assumed, for the purpose of accounting for this phenomenon.

Has any one observed that metallic particles are generally abundant in the atmosphere, or that they descend from it soon after an aurora, as they frequently should do if the hypothesis adopted by M. Biot were true? Metallic substances seldom fall from the atmosphere; and no one has pretended that they are oftener detected after an aurora than at other times. On the other hand, we have shown that crystals of snow are actually present in the air at the time of the meteor; and thus our hypothesis has, to a certain extent, the advantage of a vera causa. It is the result of induction, and if it shall prove erroneous, we believe it to be supported by a greater number of facts than those hypotheses which have preceded it.

In support of our hypothesis we might allude to the electrical light developed during the congelation of water by ether in a vacuum,

* Prècis Elementaire, Tom 2, p. 100. † Ib. p. 108.

and during the crystallization of many substances; the electrical and magnetic properties of the tourmaline and many other crystals not ferruginous or even metallic; the influence of wheat in developing electricity and magnetism in these crystals, and the elevation of temperature which atmospheric vapor experiences during its crystallization. But it is perhaps time to quit this region of speculation. Our principal object has been to make some contributions to the store of actually observed facts. If some generalizations have been attempted, and some hypothesis proposed, it has been from a conviction that analogous and concomitant phenomena often indicate the route in which observation is most likely to be rewarded by discoveries, and that the sciences of observation will be more rapidly advanced when observers are oftener reminded of their desiderata.

Since the foregoing article was chiefly written, I have been induced to examine several authors, to ascertain whether there are any existing opinions of respectable philosophers, which would appear to countenance the idea of any kind of magnetism in the molecules and simple nascent crystals of ice, a property which seemed to be inferrable by induction from the meteorological observations above related, and to which there was something analogous in the above experiment on crystallization.

I am happy to find something which appears to give countenance to this hypothesis, in the Bridgewater Treatise of Dr. Wm. Prout. He believes cohesion in general to depend upon the magnetic polarities of molecules and affinity upon the electrical polarities; and remarks that the electrical and magnetic "energies, as we are acquainted with them, are probably merely accidental and peculiar modifications of the real energies, which in their elementary form may be something altogether different and quite unknown to us."* This answers the objection that magnetism, as we are acquainted with it, is inadequate to the explanation of the phenomena of crystallization, or of any other modification of cohesion. But Dr. Prout adduces no evidence of the magnetism of molecules from any observed rotation either in them or the solids which they compose. Now molecules themselves must, from their minuteness, be invisible; and if any magnetic phenomena are ever actually observed, it must be in groups of molecules. Such phenomena, if I mistake not, I have above described. For if we admit that the cohesive force with which one molecule unites with another to form the most simple crystalline nucleus of which we can conceive, is identical with magnetism, and that the molecules are actually small magnets, then the cohesive force with which the more compounded groups unite to form larger crystals, must also be identical with magnetism, and these groups must also be real magnets. This inference appears to me inevitable, provided any such union of complicated groups is actually observed to take place; and this fact I have established. Moreover the rotation of the groups evinces polarity: and how can this polarity differ from that of the molecules, if the latter actually possess any?

* Bridgewater Treatise, p. 47.

To assume two distinct kinds of forces, one for the molecules and another for the groups, would be unphilosophical. Now as small crystals have been proved to manifest not only polarity but induction, an induction augmenting with the mass, like that of iron magnets, the tendency of my observations is to confirm the hypothesis of Dr. Prout in regard to the magnetism of invisible molecules. Another remark of Dr. Prout's will tend, in some degree, to remove the improbability that snow, when forming, may possess properties very different from common ice, and may even be susceptible of proper magnetism. Its chemical constitution may even be different. Snow is known to contain much oxygen. Dr. Prout believes that the oxygen of atmospheric vapour is chemically combined, and that this combination of aqueous vapour with oxygen, more than any other cause whatever, is in some way concerned with the phenomena of atmospheric electricity."*

It appears to me that there is one cause, which is more likely than any other, to produce ordinary magnetism in the crystals of ice, viz: great and sudden changes of temperature. This is sufficient to develop magnetism in the tourmaline, and indeed in many crystallized substances. Now great and sudden changes of temperature must actually take place during and after the formation of these atmospheric crystals. Can any one determine what may not be the magnetizing influence produced in microscopic crystals of ice by such a great and instantaneous elevation and depression of temperature as must take place at the altitudes and latitudes of the aurora? During crystallization the temperature of the crystal might rise to 32° by the evolution of latent heat, and soon afterwards sink 100°, more or less, to the original temperature of the vapour. Thirty-eight observations on the temperatures at different altitudes give a mean variation of 1° for every 300 feet or 17.6° for every mile. Hence, according to the mean rate of decrease, at the height of $\frac{74}{17.6} = 4\frac{1}{2}$ miles nearly, the air must have been at zero during the warmest weather in which the aurora has been seen here during the last five years. Although it might require a latitude rather high, especially in summer, to reduce the temperature at any altitude to —58°, which is that of the interplanetary spaces, yet a still greater cold must frequently exist in the region of the aurora, whose height, in the temperate zone, has seldom been estimated at less than 6 miles, and sometimes at 100 or more.

When we consider, then, that many crystals are magnetized by an elevation of temperature, and that in some cases bodies, independently of their position with respect to magnets, receive magnetism by cooling, it is not incredible that the astonishing changes of temperature which aqueous vapor must undergo in the elevated regions of the atmosphere, either in being instantly heated to 32° during crystallization, or cooled at the next instant down to the temperature of the surrounding vapor, may develop magnetism.

Whether aqueous vapor may pass directly to the solid state by crystallization, is a question which appears not to have been an-

* Bridgewater Treatise, p. 192.

swered, perhaps not proposed. The delicacy and regularity of many crystals, especially those which produce halos and coronæ, seem to favor the affirmative, or at least to show, that drops of water, if they previously exist, must be inconceivably minute; yet it is to the drops of liquid water that meteorologists have chiefly directed their attention. If then, in the scantiness of our data on this subject, we neglect the latent heat of vapor, ($= 1{,}000°$,) we have still the latent heat of ice, $= 140°$, which would be sufficient to elevate, for an instant, the temperature of the minute isolated crystal from $-108°$ to $+32°$. That immense electrical effects must result, is unquestionable; that magnetical ones may, is not improbable.

But a different question may be proposed. Is it possible for aqueous vapor to exist at such temperatures? That is not improbable, when we reflect, that under the ordinary pressure, a cubic foot of air at zero may contain nearly a grain of vapor. I have occasionally obtained a deposite of frost on Daniell's hygrometer at 16°, and I have seen a coat of frost within 15 minutes wholly evaporate and disappear from a painted bar of metal in a shaded situation, when the surrounding air was twelve degrees below zero, and the temperature of the metal sensibly the same. This air at $-12°$ must have been still far from the point of saturation, or, in other words, the atmosphere of vapor was far from its maximum tension at the existing temperature.

In this paper, we have considered the solar and lunar columns, the aurora borealis and auroral clouds and halos. Between these phenomena a connexion more or less intimate has been shown to subsist. Several of these phenomena unquestionably depend upon the optical properties of crystals. As the others may depend upon the magnetic properties of the same class of bodies, in their nascent and microscopic state, the observations on some of those microscopic phenomena of crystallization which are analogous to those of magnetism may not be considered irrelevant. The time may perhaps arrive, when the meteorologist will regard, with no less interest than the mineralogist and the optical philosopher, "those wonderful structures which," (to use the language of Sir John Herschell,) "nature builds up by her refined and invisible architecture, with a delicacy eluding our conception, yet with a symmetry and beauty which we are never weary of admiring."

SECTION VI.—*Comparison of Vertical Columns, Halos, the Aurora Borealis and Auroral clouds, in regard to the changes of atmospheric pressure and temperature which precede, and the storm which succeeds them.*

The first column of each of the following tables shows the time of the aurora, &c., none being omitted between the first and last in each table unless I had observed these at a distance from this place, or unless some of the observations of the barometer, &c., were wanting, so as to preclude a comparison. The second column shows how many hundredths of an inch, the barometer at the observation made 2 days before the aurora, &c., was found to have fallen during the preceeding 24 hours. Twelve hours was avoided on account of the diurnal variations of the barometer and especially of the thermometer. The next column shows the same in regard to the observation 1½ days before, compared with that 2½ before. A similar explanation applies to the other columns of pressure and temperature. In the column adjoining the last column of temperature, we have expressed by R. or F. (i. e. rising or falling,) the prevalent variations during the 2½ days immediately preceding the meteor, regard being had to the amount of change. The next column expresses the same with regard to the thermometer. The next two columns express, in days, the length of time before the meteor when the barometer began to rise, or the thermometer to fall, asterisks being placed where the opposite changes were experienced. The next three columns express the number of days which elapsed between the first appearance of the meteor, and the commencement of snow or rain, and the number by which the meteor had been preceded by the commencement of the changes in the barometer and thermometer. The last column shows the temperature at 9 P. M., on the day of the meteor, as all the meteors except the auroral clouds were seen in the evening.* At the bottom of the columns are shown the mean temperatures on different evenings and other mean results, as well as the number of times in which the barometer or thermometer was rising, falling, or stationary.

* The solar column was seen at sunset; one lunar column is omitted for want of complete observations in temperature, &c.

AURORA BOREALIS.

Time of 40 Auroras.	PRESSURE. Days before.					TEMPERATURE. Days before.					Bar. risen or fallen.	Ther risen or fallen.	Bar. rose bef. Aurs.	Ther. fell bef. Aur.	Snow, &c. at Aur.	Bar. rose bef. snow.	Ther. fell bef. snow.	Temperature at time of Aur.
	2.	1½.	1.	½.	0.	2.	1½.	1.	½.	0.								
1830. October 5,	.25	.05	—.17	—.15	.02	—18°	—11°	0°	3°	9°	S	R	.50	*	5.00	5.50	*	57°
October 6,	—.17	—.15	.02	.22	.24	0	3	9	4	—11	S	R	1.50	*	4.00	5.50	*	46
October 7,	.02	.22	.24	.15	.04	9	4	—11	— 6	— 3	R	F	2.50	1.50	3.00	5.50	4.50	42
December 11,	—.30	.25	.57	.32	.03	6	— 1	2	2	— 2	R	F	2.00	*	3.00	5.00	*	35
December 12,	.57	.32	.03	.16	.25	2	2	— 1	— 3	— 5	R	F	3.00	1.50	2.00	5.00	3.50	30
1831. January 14,	—.32	.36	.14	—.02	—.21	—18	—18	2	3	— 1	R	F	2.00	2.50	.50	2.50	3.00	10
February 6,	—.15	.37	.30	.28	.28	— 6	— 9	—11	— 1	4	R	F	2.00	2.50	*	*	*	13
February 7,	.30	.28	.28	.16	—.04	—11	— 1	4	2	1	R	F	3.00	3.50	*	*	*	13
March 1,	.16	.04	.01	—.05	—.07	4	3	11	10	5	R	R	3.00	*	4.50	7.50	*	34
March 8,	—.03	—.34	.05	.31	.18	— 9	1	2	—12	—11	R	F	1.50	1.00	.50	2.00	1.50	25
March 12,	.29	.16	—.15	—.26	—.17	— 2	0	6	— 1	— 2	R	F	*	*	1.25	*	*	37
March 13,	—.15	—.26	—.17	—.28	—.18	6	— 1	— 2	— 2	— 4	F	F	*	2.00	1.25	*	3.25	33
June 1,	—.04	.02	.01	.00	.04	0	— 3	1	2	— 1	F	F	.50	.50	3.75	4.25	4.25	74
June 10,	—.03	.01	.01	.02	.03	5	1	3	2	2	R	R	1.75	*	1.75	3.50	*	76
July 31,	.22	.01	—.10	—.11	.03	— 7	3	8	6	— 2	R	F	1.75	*	1.75	3.50	*	74
1832. August 22,	.20	—.01	—.16	—.26	—.16	2	— 5	5	2	— 1	R	F	*	*	*	*	*	67
August 23,	—.16	—.26	—.16	.00	.07	5	2	— 1	5	1	R	F	*	*	*	*	*	68
October 30,	.22	.14	.03	.00	—.07	— 3	— 1	— 1	— 1	0	R	F	2.50	2.00	*	*	*	35
November 15,	—.24	.11	.36	.28	.27	6	— 5	—18	— 9	— 7	R	F	2.00	2.00	*	*	*	21
1833. January 19,	.32	.07	.07	.49	—.47	—13	15	13	—30	—13	R	F	2.50	1.00	2.00	4.50	3.00	9
March 23,	—.27	—.12	.16	.33	.17	5	— 2	— 8	5	2	R	R	1.50	*	*	*	*	44
May 17,	.21	.20	—.03	—.06	—.20	— 2	5	— 2	— 1	4	R	R	3.00	*	3.00	6.00	*	65
July 10,	—.19	—.09	.17	.18	.03	— 1	—11	—10	4	6	R	F	1.50	1.00	1.00	2.50	2.00	68
September 1,	.01	—.22	—.20	—.13	.16	6	— 3	5	14	— 6	F	R	*	*	2.00	*	*	58
September 5,	—.08	—.24	—.14	—.03	.11	2	— 1	7	9	— 2	F	R	*	*	2.50	*	*	62
September 6,	—.14	—.03	.11	.21	.07	7	9	— 2	2	— 2	R	R	1.50	*	1.50	3.00	*	64
September 13,	.21	.14	.12	.15	.06	— 6	— 8	— 3	—10	0	R	F	3.50	3.50	*	*	*	51
September 23,	.22	.30	.15	.03	—.09	—12	— 1	— 7	— 4	0	R	F	3.00	3.00	2.00	5.00	5.00	48
October 4,	—.27	.10	.24	.35	.22	— 1	5	— 2	— 7	— 6	R	F	2.00	1.50	4.00	6.00	5.50	44

October 5,	.24	.35	.22	.24	.11	— 2	- 7	— 6	— 4	4	R	F	3.50	2.50	3.00	6.50	5.50	48
October 14,	—.38	—.75	—.23	.52	.52	9	10	— 1	— 2	— 1	F	R	*	*	2.00	*	*	46
November 3,	—.43	—.35	.12	.22	.19	10	13	— 1	—10	—11	R	F	1.50	1.50	2.50	4.00	4.00	28
1884. January 10,	.20	.29	.05	—.04	.14	— 3	—16	4	16	9	R	R	2.50	*	.50	3.00	*	18
March 3,	—.14	—.23	.17	.61	.22	— 2	2	— 8	—16	— 2	R	F	1.50	1.50	1.50	3.00	3.00	24
March 4,	.17	.61	.22	—.12	—.09	— 8	—16	— 2	15	16	R	R	2.50	*	2.50	5.00	*	40
March 10,	—.32	.50	.51	.34	—.09	— 2	— 8	—14	— 3	2	R	F	2.00	2.50	4.00	6.00	6.50	26
May 3,	.15	.17	.14	.18	.14	1	0	6	8	— 3	R	R	3.50	*	1.50	5.00	*	54
October 6,	—.25	.03	.34	.39	.20	5	— 6	—12	— 2	— 1	R	F	2.00	2.00	1.00	3.00	2.00	51
November 2,	—.01	—.01	—.01	. 0	. 0	— 6	0	— 1	— 2	0	F	F	*	3.00	*	*	*	42
December 21,	—.03	—.18	—.22	—.02	.22	6	7	4	—18	—26	F	F	*	1.00	2.50	*	3.50	25
Mean,	R 18 F 21	R 25 F 15	R 28 F 12	R 23 F 13 S 4	R 27 F 12 S 1	R 18 F 20 S 2	R16 F21 S 3	R17 F22 S 1	R19 F21	R12 F23 S 5	F 9 R30 S 1	F23 R17	2.16	1.95	2.27	4.49	3.81	42.47
						40.8°		40.8°		42.5°		Temperature at 9 P. M.						

NOTE.—Where the sign *is* omitted in the tables, *it is* to be considered as positive.

AURORAL CLOUDS.

Times of 22 Auroral Clouds.	PRESSURE. Days before. 2.	1½.	1.	½.	0.	TEMPERATURE. Days before. 2.	1½.	1.	½.	0.	Bar. risen or fallen.	Ther. risen or fallen	Bar. rose bef. clouds	Ther. fell bef. clouds	Snow, &c. af. clouds	Bar. rose bef. snow.	Ther. fell bef. snow.	Temperature.
1832. October 30,	.22	.14	.05	. 0	—.07	— 3°	— 1	— 1°	— 1°	0°	R	F	2.50	2.00	4.75	7.25	6.75	35°
November 29,	.04	.16	.03	—.10	.20	2	3	— 1	— 1	—14	R	F	2.00	1.50	0.30	2.30	1.80	30
December 1,	—.20	—.06	.37	.05	.30	—14	—11	3	4	—11	R	F	1.50	2.50	1.20	2.70	3.70	22
December 11,	—.09	.43	.36	.08	—.22	— 1	— 1	— 4	— 9	1	R	F	1.50	2.50	0.50	2.00	3.00	34
1833. March 25,	.17	—.04	—.21	—.27	—.02	2	5	4	— 1	—11	F	F	*	1.00	*	*	*	37
September 30,	.09	—.18	—.10	.24	.33	0	14	10	2	—14	R	R	1.00	*	1.50	2.50	*	55
1834. May 13,	—.37	—.25	.13	.21	.21	2	— 5	—10	—10	— 6	R	F	1.50	2.00	1.00	3.50	3.00	36
August 13,	.02	.15	—.16	.12	.26	8	5	— 1	—14	—10	R	F	1.00	1.50	.50	1.50	2.00	68
1835. February 4,	.50	.33	.11	—.17	—.23	—12	— 6	—11	— 8	1	R	F	4.00	4.00	1.75	5.75	5.75	3
March 14,	—.19	—.59	—.08	.41	.03	3	0	0	— 2	— 3	F	F	*	1.00	1.50	*	2.50	35
August 3,	.20	.20	.07	—.16	—.04	— 9	— 6	— 1	— 1	— 2	R	F	3.00	3.00	*	*	*	58
August 11,	—.06	—.10	—.09	—.01	.05	4	0	2	— 4	4	F	R	*	*	.50	*	*	75
August 17,	.07	—.28	—.10	.28	.10	3	— 1	— 2	1	2	R	R	1.00	*	1.00	2.00	*	71
November 5,	—.08	.05	.01	—.17	—.07	7	5	2	2	4	F	R	*	*	2.00	*	*	55
November 18,	—.20	.18	.08	.02	.08	3	—11	—18	— 5	1	R	F	2.00	2.00	.75	2.75	2.75	37
November 26,	—.27	.10	.21	.05	.01	— 6	— 5	2	— 2	1	R	F	1.50	2.00	.60	2.10	2.60	23
December 11,	—.34	.36	.66	—.31	—.07	— 3	— 4	—11	—13	1	R	F	2.00	2.50	.75	2.75	3.25	12
December 12,	.66	—.31	—.07	—.19	—.23	—11	—13	1	14	12	F	R	*	*	1.00	*	*	24
December 17,	—.15	.13	.60	.35	.14	—17	23	—28	4	4	R	F	1.50	1.50	1.50	3.00	3.00	—7
December 21,	.06	—.09	—.33	—.28	—.13	17	16	12	1	—12	F	R	*	*	1.80	*	*	25
December 22,	—.33	—.28	—.13	—.03	.15	12	01	—12	—12	— 3	F	F	*	1.50	1.00	*	2.50	22
December 24,	.15	.32	.29	.07	—.19	— 3	— 1	— 8	—15	11	R	F	3.50	3.50	.50	4.00	4.00	25
Mean,	R 11 F 11	R 12 F 10	R 13 F 9	R 11 F 10 S 1	R 12 F 10	R 11 F 9 S 1	R 8 F 12 S 1	R 8 F 13	7 —15	R 11 F 10 S 1	R 15 F 7	R 6 F 16	1.90	2.12	1.22	3.15	3.32	35.2°
						41.1°		32.8°		35.2°	Temp. at 9 P. M.							

HALOS.

Time of 17 Halos.	PRESSURE. Days before. 2.	1½.	1.	½.	0.	TEMPERATURE. Days before. 2.	1½.	1.	½.	0.	Bar. risen or fallen.	Ther. risen or fallen.	Bar. rose bef. Halos.	Ther. fell bef. Halos.	Snow, &c. of Halos.	Bar. rose bef. snow.	Ther. fell bef. snow.	Temperature at time of Halos.
1831. February 21,	—.12	.32	.55	.40	*	5	— 6	—16	— 8	*	R	F	2.00	2.00	1.00	3.00	3.00	*
1833. June 23,	. 0	—.02	—.09	—.03	—.02	3	11	1	0	— 1	F	R	*	*	.75	*	*	68
September 25,	—.09	—.28	—.23	—.05	.03	0	2	5	4	6	F	R	*	*	1.00	*	*	55
1834. February 16,	—.06	.18	—.26	—.21	.53	7	15	11	—10	—13	R	R	2.00	*	3.00	5.00	*	35
February 22,	.06	—.02	—.16	—.03	.02	— 8	1	2	— 2	10	F	R	*	*	.50	*	*	36
April 18,	—.09	—.02	.34	.46	.10	— 4	0	—15	—18	3	R	F	1.50	3.00	.50	2.00	3.50	48
November 15,	—.10	—.44	—.10	.58	.61	4	6	— 1	—24	—21	R	F	1.00	1.50	1.75	2.75	3.25	36
December 5,	.25	.49	.22	—.06	—.04	—10	— 6	— 2	— 1	1	R	F	3.00	3.50	.50	3.50	4.00	26
December 9,	—.19	—.43	—.24	.66	.50	— 6	0	3	—12	—11	R	F	1.00	1.50	.50	1.50	2.00	32
December 15,	.19	.14	—.05	.33	—.30	6	—17	—38	—14	11	R	F	1.00	2.00	.50	1.50	2.50	8
1835. February 3,	.14	.32	.50	.33	.11	—10	—14	—12	— 6	—11	R	F	2.00	3.00	.75	3.75	3.75	2
February 12,	—.08	—.29	—.27	—.01	.07	5	7	15	7	— 1	F	R	*	*	1.75	*	*	32
October 28,	—.03	.10	.04	—.06	—.10	6	2	4	6	2	F	R	*	*	1.50	*	*	52
November 4,	—.24	—.23	—.08	.05	.01	7	9	7	5	2	F	R	*	*	.50	*	*	52
December 3,	.04	.16	.45	.32	—.20	4	— 5	—18	— 8	8	R	F	4.50	2.00	.50	5.00	2.50	12
1836. February 2,	—.30	—.07	.18	.18	.06	— 5	—18	—25	—18	4	R	F	1.50	2.50	1.00	2.50	3.50	0
February 5,	.16	.19	.23	.02	—.07	4	— 5	— 8	—15	0	R	F	2.50	2.00	1.50	4.00	3.50	4
Mean,	R 6 F 10 S 1	R 8 F 9	R 8 F 9	R 10 F 7	R 10 F 6 S	R10 F 6 S 1	R 8 F 7 S 2	R 8 F 9	R 4 F 12 S 1	R 9 F 6 S 1	R 12 F 6	R 8 F 10	2.69	2.20	1.43	3.13	3.15	28.3°
						†33.3°		27.7°		28.3°	Temp. at 9 P. M.							

† The evening temperatures are given in this line, though the days in this table are reckoned from evening or morning, according to the time the clouds appeared. The other meteors having occurred not far from 9 P. M., no such change was necessary in the other tables.

VERTICAL, SOLAR AND LUNAR COLUMNS.

Time of 4 columns.	PRESSURE. Days before, 2.	1½.	1.	½.	0.	TEMPERATURE. Days before, 2.	1½.	1.	½.	0.	Bar. risen or fallen.	Ther. risen or fallen.	Bar. rose bef. storm.	Ther. fell bef. columns.	Snow, &c. of columns.	Bar. rose bef. snow.	Ther. fell bef. snow.	
1833. December 27,	—.13	.19	.29	.03	.03	1	0	— 6	— 7	— 7	R		2.00	2.00	2.00	4.00	4.00	21°
1834. January 5,	.16	.74	.24	.10	—.09	— 1	—13	—13	— 6	1	R		2.50	2.50	* *	* *	* *	6
1835. March 4,	—.19	—.39	—.08	.41	.03	3	0	0	— 2	— 3	R		* *	1.00	1.50	* *	* *	25
1836. February 5,	.16	.19	.23	.02	—.07	4	— 5	— 3	—15	0	R		4.50	2.00	1.50	6.00	3.50	4
Mean,	R 2 F 2	R 3 F 1	R 3 F 1	R 4	R 2 F 2	R 3 F 1	F 2 S 2	F 3 S 1	F 4	R 1 F 2 S 1	R 3 F 1	F 4	3.00	1.87	1.66	5.00	3.33	14.5°
						6.5°		19.5°		14.5°	Temperature at 9 P. M.							

RECAPITULATION AND REMARKS

On some of the results in the tables.

Snow or rain fell in three instances out of four soon after lunar and solar columns; in 15 instances out of 16 after coronæ and other halos; in 20 instances out of 22 after auroral or magnetic clouds, and in 31 out of 40 instances after auroras. In some instances, the rain or snow may have fallen without being observed; in others, it may have been re-dissolved in the atmosphere in passing through inferior strata. This would be more likely to take place when crystals formed at a great height, as in the case of the aurora; and when not formed throughout a stratum of great extent, they might be wafted to another region.

The average number of days from the columns to the time of the commencement of snow or rain was 1.66; from halos (including coronæ,) to snow, &c. 1.03; from auroral clouds to snow, &c. 1.22; from the aurora borealis to snow, &c. 2.27 days.

The temperature within the 21 days immediately preceding the aurora, was generally falling 23, and generally rising 17 times; before the auroral clouds, falling 16, rising 6 times; before halos, falling 10, rising 8 times; before the luminous columns always falling.

The atmospheric pressure within the same time, previous to the aurora, was generally increasing in 30 instances, generally diminishing in only 9; before auroral clouds, increasing 15, diminishing 7; before halos, increasing in 12 instances, diminishing in 6; before the columns, increasing in 3 instances, and diminishing in 1.

Although a portion of water can remain in the æriform state at the elevation of any of these meteors, it is evident, from the moderate elevation at which the air must have been at the freezing point during any of them, that water could not there remain in the state of liquid drops; whether it might in vesicles, it may be impossible to decide. When meteorologists have represented all coronnæ as produced by liquid drops, and all clouds as being masses of condensed vapor, and snow as resulting from its subsequent congelation, have not their imaginations been influenced by the warmth of their own temperate climes and moderate altitudes.

Cirrus clouds have been seen above the highest mountains; and the foregoing observations and considerations show, that at least these cirri and cirro-cumuli which have been called magnetic and compound (or composite) magnetic, are all essentially crystallized.

When clouds are near the horizon, their apparent narrowness is often the effect of obliquity to the visual ray; but those slender arched bands of cloud that span the sky, have generally, at this place at least, one of the two magnetic positions, and may be regarded as groups of crystals, more or less regular. It may be less generally the case in some countries farther east, where the magnetic latitude is less; and with us, the irregularities of position may result from a loss of magnetism on the completion of crystallization and the descent near the earth.

It would be interesting to determine whether there is not a correspondence between the epochs of the prevalence of these clouds and auroras on the one hand, and intense cold and deep snows on the other. Last November was distinguished by an aurora remarkable at first for its redness, and afterwards by the completeness of its colonnade, whose arched columns seemed as it were, to sustain the entire dome of the sky. A few days afterwards, commenced the snows and cold of a winter, which for depth of snow and protracted intensity of cold, has had no parallel since that of 1780, which was preceded immediately, it is believed, though there may be no exact records, by auroras which were of unprecedented brilliancy, and which produced a distinct sound. Till within a few years, auroras, in this country, had been for many years rare and slight, and there had been little snow for many years during the winter. Did not the snws and auroras return at the same time? It is probably about 20 years since the snows began to increase; and the auroral arch which I described as having come to the zenith in 1820, is probably the first of the kind on record (and that not on record till now,) since the commencement of the present century.* If we retrace the history of snows and auroras from 1780, the first epoch that strikes us, as remarkable, for either, is between 1707 and 1719. Previous to that, no remarkable ones had been recorded since Nov. 15, 1574. The aurora recommenced in 1707. In March, 1716, the aurora was more remarkable throughout Europe than it had been for 142 years. The appearances for three successive nights were such as were pronounced "wondrous."† Within a year, "in February, 1717, fell the greatest snow ever known in this country, or perhaps any other; the people stepped out of their chamber windows on snow shoes."‡ Such was the snow in N. England, which, according to tradition, was 10 feet deep. In 1719, the aurora spread such terror throughout N. England, as to suspend "all amusements, all business, and even sleep, there being a general apprehension of the approach of the final judgment."§ The auroras of last Nov. were accompanied by magnetic, or (if the term is preferred) cirrus clouds. These clouds have continued to be unusually frequent during January, February and till at least the 17th of March, i. e. four months from the time of their commencement. During all this time, the winter has scarcely relented; the snow covering the ground during one-third of the time to the depth of 5 or 6 feet. Measured as it fell, it was 10 feet.‖ The mean temperature

* 1827 verifies the rule. † Hutton's Mathematical Dictionary. Art. Aurora.
‡ "Interesting events," &c. p. 71. § Ib. p. 73.
‖ The last fact I learn from Mr. C. H. Tomlinson.

during the four months, commencing at the middle of November, has been only 19.2°, December was 19°, January 20.8°, February 16.1°, the latter half of November 20°, and the first half of March 20.2°. Previous to January 1st, the observations were made at 9 A. M. and 9 P. M. The mean for the other months is that of the temperatures at 10 A. M. and 10 P. M. These last results have, for February, been verified by observations with the same instrument at sunrise, 2 P. M. and one hour after sunset. The close correspondence of the results is interesting; the mean by the latter method being 15.7°, i. e. only .4 lower.

The barometric changes which precede thunder-showers, and which precede those rains and snows which are not obviously connected with any of the above described meteors, have also been examined.

In addition to such as were thus connected, there were at Schenectady in the first half of the year 1834, 30 rains and snows, within the 5 days immediately preceding which no aurora borealis, auroral cloud, halo or luminous column had been observed here, or (so far as the returns to the Regents show) in any part of the State of New-York.

The barometer between 0 and 1 day before, had been falling 19 times, rising 10, stationary 3; between ½ and 1½ days, falling 19, rising 11 times; between 1 and 2 days, the barometer was oftener rising than falling; but the greatest difference was between 4½ and 5½ days, when it was rising 21 times and falling 9. Now if we compare the changes for 2½ days, taking 1½ days on each side of this time of maximum difference, we find that the pressure was generally increasing only 16 out of 30 times; and that in those instances in which it increased, the average time at which it began to increase was 5.9 days before the storm.

By examining in the same way, the 19 thunder showers that were observed by me at Schenectady, in the years 1834 and 5, it may shown that the pressure between 4 and 5 days before, was increasing 11 and diminishing 7 times, and stationary once; and that during the 2½ days of maximum difference, it was generally increasing only 11 out of 19 times; and that in those instances in which it was increased, the average time at which it began to increase was 5½ days. With the above exception, there were no 2½ days in which it was generally rising; but in those instances in which it was, the mean time of the commencement of the rising before the rains and snows was 2.4 days, and before the showers 2.8 days.

These tables, as well as other results in relation to changes in pressure, temperature and clearness of the sky, that succeed the above mentioned meteors, are here omitted for want of room.

The observations given in the above tables, and those alluded to are sufficiently numerous (with the exception of those on luminous columns) to justify some generalizations. We shall conclude by stating several,

PROPOSITIONS,

Which may be regarded as approximately and generally true, in relation to mean results, though not universally, or in relation to each particular instance.

Proposition 1st, in relation to the *relative time of greatest depression of temperature before different meteors.*

The greatest depression of temperature takes place between 1 and 2 days previous to the aurora borealis, auroral clouds and halos.

Proposition 2d. *Relative order of the thermometric and barometric changes before different meteors.*

Previous to the clouds, halos and luminous columns, the temperature changes, either earlier than the pressure or nearly at the same time; previous to the aurora, the pressure changes more than ½ of a day before the temperature.

Proposition 3d. *Length of time before the storm when its indications appear in case of different meteors.*

When the snow or rain is preceded by an aurora borealis or by luminous columns, the thermometer begins to fall and the barometer to rise between three and five days before the storm; and when the storm is preceded by auroral clouds or halos the same indications are presented between three and three and a half days before it.

Proposition 4th. *Increase of pressure before rain or snow not preceded by these meteors.*

Previous to a thunder shower, or a rain or snow not preceded by an aurora borealis, a halo or auroral clouds or luminous columns, the increase of atmospheric pressure for several successive days is less general, but when it does occcur, it commences either earlier or later than when the storm is preceded by either of those meteors; more generally between 5½ and 6 days before the shower or storm.

Proposition 5th. *Time from different meteors to snow or rain.*

The snow or rain descends sooner after a halo than after an auroral cirrus cloud, earlier after this than after a vertical lunar column, and earlier after a lunar column than after an aurora borealis.

Proposition 6th. *Theoretical inference in relation to the nature of these meteors.*

As they are all preceded by a depression of atmospheric temperature below the mean, and by an augmentation of pressure greater than that which precedes the fall of snow or rain at times when none of these meteors have recently appeared, there is additional evidence of the similarity of their origin.

Proposition 7th. *Theoretical inference in relation to their altitude.*

We may infer from the last two propositions that a magnetic cirrous cloud is higher than a halo, but lower than a lunar column, and the latter lower than the aurora borealis.

Proposition 8th. *Practical inference with regard to the prognostication of storms.*

The foregoing propositions which relate to pressure and temperature may suggest a rule for predicting storms much earlier than by other methods; inasmuch as these changes, and especially that

of the barometer, take place even more generally than those opposite changes which often occur within the twenty-four hours immediately preceding the storm, and which have been observed by others, and generally regarded as among the surest indications.

One probable cause of these changes.

It is not improbable that one frequent cause of these changes in the pressure, temperature and vapour of the atmosphere, is the mutual influence of the two great aerial currents, which are produced by inter-tropical heat and modified in direction by the difference of velocity in the trrestrial parallels. These currents flow, in our latitude, in a northeasterly and southwesterly direction, the superior one from the equator toward the pole, the inferior one from the pole toward the equator. They pass each other and partially intermingle at an elevation which is believed to be not very different from that at which the aurora borealis or auroral clouds frequently appear. Near their plane of contact vapour must be condensed and crystallized. Is it improbable that an occasional change in the relative elevation of these opposite currents may occasion a kind of collision, such as to produce an accumulation of air and an increase of atmospheric pressure, which will be subsequently diminished during the precipitation that must result from their extensive intermixture? The prevalence of the polar current may contribute to the southwesterly motion of the luminous matter.

Concluding Remarks.

The present article not having been commenced with reference to any comprehensive theory, presents some miscellaneous facts, which are thrown into the common stock for the use of others.—Even among the relevant facts, there are, undoubtedly, interesting relations yet to be traced. 2d. The article contains some generalizations whose results, whilst they may suggest to others a more correct theory, cannot be thereby invalidated. 3d. There are inferences of another class which may be modified, but probably not overthrown, by the progress of discovery. For example: that the aurora is an electrical phenomenon; that it is intimately connected with the elements of clouds, and with these elements only when they are generated in air intensely cold as well as nearly saturated; and that cirrus clouds of a certain class are intimately connected with auroral action, and that both these phenomena, and also coronæ, do, for some reason or other, require a cold adequate to the crystallization of aqueous vapour, are propositions which will not lose all their interest nor any of their truth, even if the discovery should be made that the elements of clouds are essentially globular or vesicular, and that the vapour is not yet crystallized at the time of the phenomenon. It may be necesary to remark, that we have not intimated that all snow is not crystallized. On this subject, crude notions have prevailed. 4th. As to the

views which belong to a more hypothetical class, the author will cheerfully renounce them when a more plausible theory shall appear, as they are designed to facilitate, not to limit the investigation. This theory may contain much that is novel, valuable and true, without being in the highest sense *the* truth.

ARTICLE II.

Miscellaneous* Meteorological Observations and Remarks for 1835.

By PROFESSOR JOSLIN.

January.—Extreme Cold.

The interest attached to the almost unprecedented severity of the cold, during some parts of this month, will justify the publication of thermometrical observations more numerous than usual.

January 3. At 11 P. M. —24°.
" 4. At sunrise, —32°.
" 5. At sunrise, —4°; 11 P. M. —20°.
" 7. At sunrise, —22; 11 P. M. —25°.
" 8. At sunrise, —28; 11 P. M. —21.5.
" 9. At sunrise, —22°.
" 10. At sunrise, —16.5.
" 11. At sunrise, —7°.
" 12. At sunrise, —6°.

The greatest depression was on the morning of the 4th; the thermometer standing at 32° below zero, at sunrise. On the windows, this morning, in addition to the confused mass of crystals forming extensive icy coats, there were seen many isolated starlike crystals, nearly as perfect as those which occasionally fall from the atmosphere. As I had never seen, on any window, those isolated stellate crystals so regular or perfect, it was natural to infer that intensity of cold promotes regularity of crystallization under such circumstances. Some confirmation of this was afforded three or four days afterwards, when the cold was nearly as intense, and the isolated crystals nearly as perfect. Thus the three coldest nights produced the most regular crystals. Moreover, I have observed that the thermometer is low and falling when stellate crystals form in the atmosphere.

7th. At ½ past 8, A. M. sky clear; ther. at ½ past 8 —20°. This was one of the mornings on which were seen the regular crystals above mentioned; the thermometer at sunrise was —22°. Breeze at ½ past 8 westerly and very gentle; none perceptible except by smoke, &c. In the evening it was N. W., but continued equally slight, as it did, indeed, during most of this intensely cold weather. This beneficient provision, in such cases, prevents the rapid abstraction of animal heat, and the loss of many lives. At 6 P. M. temp. —8°, 10 P. M. —21°, the same as at 9 P. M., and the same by two thermometers, which, under similar circumstances, were found to correspond, one of which was at this time about four feet from the middle of the north side of the colonnade of the north college, and the other about 60 feet from the middle of the south side, and both opposite to a part of the building in which no fire is

* I shall, however, confine myself to a single topic for each month.

kept, and six feet from the ground. All the preceding observations had been made at the former place, with the exception of one at ½ past 9 that evening. At that time, the thermometer was removed to a greater distance both from the colonnade and the main building; but instead of sinking, as was expected, in consequence of a less obstructed radiation, (or, more strictly speaking, in consequence of a less counter radiation from the buildings) it rose 3°. This was probably attributable to eddies of warm air descending from the chimneys. I say eddies, for without them the warm air could not have descended. It might seem from this, that at a certain distance from a building, on the leeward side of it, a thermometer may be more influenced by its heat, than at a less distance. Many experiments were made to determine the influence of these currents; and the results showed that the difference of temperature at three localities above mentioned, depended chiefly upon that cause, as the difference was little or nothing when the breeze was very slight or imperceptible. From nine experiments, made with reference to this point, on some of the coldest days, it resulted that the location 60 feet south of the building was on an average 2.3° colder than one four feet north of it, and the latter 2½° colder than the one 20 feet north. Mere distance from a building containing no fire, seems to have had little influence.

9th. The breeze varied from W. to N, W. At sunset the sun was deeply reddened by vapors, and remarkably flattened by the great atmospherical refraction. It appeared as an ellipse, with its longer axis horizontal, as might be expected from the greater obliquity of the rays coming from its lower limb.

31st. The Mohawk river breaks up opposite to Schenectady. The ground, during the month, till within a day or two past, covered with snow.

I am indebted to the politeness of Mr. Holland, the treasurer of the college, and of Mr. Charles H. Tomlinson, of Schenectady, for the privilege of comparing my thermometrical observations with theirs, which were made in the city, with great care and in situations judiciously selected.

From a comparison of the observations made at sunrise, and of those at 9 P. M., it appears that at evening the air at the college was, on an average, more than half a degree colder than that in the city, whilst in the morning that in the city was two-thirds of a degree colder than that at the N. College, on the hill. The evening observations here compared, included most of those made during the month, whilst the morning ones were those of unusually cold days. By comparing the evening observations of eight cold days, which corresponded nearly with these last, it appears, that during that extreme cold weather, it was at 9 P. M. nearly two degrees colder at the college than in the city. Any one would have anticipated some difference in consequence of fires kept burning during the day. Inspection of the table will show that the average proportion of the sky clear was nearly one-half, which is nearly twice as great as during the preceding month; that the average height of the barometer was 29 inches 70 hundredths,

which is one-fiftieth of an inch lower; and that the average temperature of January was 17¼ degrees, which is only about five degrees colder than December, and not a degree different from January of last year; as could be shown by observations made by me at the same hours of the day. Thus, whilst there is nothing more fickle than the weather, if we compare short periods, there are few things more constant, if we compare the mean results obtained from monthly and annual periods, and in general, from those of considerable length. And notwithstanding the transient oscillations between wide extremes, every thing in meteorology, as well as in astronomy, is so wisely and beneficently arranged, as to produce that ultimate equilibrium, which is essential to the stability of the present order of nature, and to the consequent preservation and welfare of organized, sentient, and intelligent beings. Thus, every thing conspires to fulfil the promise, that whilst the world shall stand, not only day and night, but summer and winter, and seed time and harvest, shall not cease.

February.—Temperature.

The mean temperature of February was nearly as low as that of January, the difference being only one degree and a half. The barometer, in February, was six hundredths of an inch lower; and the proportion of clouds was the same, not differing by a one-hundredth part.

On the 10th, at sunrise, the thermometer was 8 degrees below zero. About that time and a few days before, intense cold was experienced in the southern and southwestern parts of the United States; the coldest time in the winter there having been about a month later than here. At St. Louis on the 8th, the thermometer is said to have been 22° below zero.

March.—Solar spots.

On the 4th of March, I perceived with the telescope, about a dozen spots on the sun. It may be advisable to record these phenomena in connexion with others more properly meterological, in order to determine, in time, whether the former have any meteorological influence. Three of the larger spots were distinctly seen to be surrounded by a penumbra, whose width on each side of the spot was observed to be nearly if not exactly equal to that of the spot itself. This relation of widths I have before observed, in the case of other spots on the sun. The penumbras of the two largest spots coalesced; thus darkening the sun more or less, over a space larger than the earth would cover, if it were laid upon the sun. These spots would appear still greater were it not for irradiation.

On the 21st and 25th, I viewed the sun with a telescope, without detecting any spots. Yet by the sun's revolution on its axis, they must have been made to reappear had they remained upon its surface. Similar spots were seen at other times in the year, especially in November; but I have no regular series of observations on the subject.

April.—Connexion between storms and atmospheric pressure.

On the 28th, it snowed and rained; the snow fell to the depth of about 5 inches. During 12 hours of the preceding night, the barometer fell more than half an inch; so that the pressure on every square inch of this part of the earth's surface was diminished about 7½ lbs. The barometer here usually falls before storms, so as to enable one to predict them. This has been observed in many other places. Much valuable information might be gained in relation to the progress and causes of storms by a more general attention to barometrical observations; even with imperfect instruments; for the changes, as shown by the relative daily results, are more important than the monthly or annual means.

May.

Possible connexion between the exciting cause of *epilepsy* and that *state of the air which precedes a storm.*

One case on the 4th A. M.: Barometer low and falling; wind S. E.; rain in the afternoon. The last fit had been on February 28th, barometer at that time, low in the morning; snow in the afternoon. On the next day, another individual by whom I was consulted, had a fit of epilepsey at 2 or 3 o'clock A. M., barometer still lower and falling at the time; rain, A. M. and P. M. A greater number of facts is wanted.

June.

Interesting *connexion* between the *exciting causes of hemorrhages in general*, and that state of the *atmospheric pressure, &c., which precedes a storm.*

Medical meteorology, as a distinct and important science, has been scarcely thought of, much less cultivated. It may be proper, even in a work which is not professional, but which will be examined by many scientific physicians, to invite their attention to this rich and unexplored field of inquiry, in the hope that some may be induced to make comparative records of medical and meteorological facts. Many of the details would of course only be appropriate in communications for professional transactions and journals; but I deem this a proper place to allude to the subject, inasmuch as the experienced physicians of this State would find in the voluminous returns made to the Regents of the University, and in the valuable meteorological work annually published under their superintendence, a rich store of meteorological facts, to compare with the medical ones which they may have been for many years recording.

The correspondence alluded to at the commencement of this paragraph, I have repeatedly observed in all kinds of hemorrhages, but only hæmoptysis will be here noticed, and only one case of it, and that because it happened to occur in this month. It commenced June 25th, 1835, about 3 o'clock A. M. There was a great and sudden aggravation of it on the 26th at 2 A. M., and on the 27th at 1 A. M. Barometer all this time low, and generally falling slowly. Air humid. Rain on the 25th, 27th, 28th and

29th.* This case is cited only for illustration. A sufficient number of cases for proof could be given.† It readily occurs to one, that nothing is a priori more probable, than that the blood-vessels are more liable to be ruptured when deprived of part of that mechanical support afforded by atmospheric pressure. But it is not improbable that the advancement of meteorology will disclose some electrical or other change which is not detected by the instruments now in general use, and which contributes more to this effect than that diminution of atmospheric pressure, with which the obscure but real cause is usually associated. One reason for this opinion is, that I have, in many instances of hemorrhage, observed that the barometer was above the mean, though falling; in some cases high and falling. But in either case, rain or snow fell in a day or two, and was usually preceded by those other changes, (as those in the wind and dew point,) which usually precede a storm. I am disposed to attribute the effect in a great measure to deficiency of oxygenation of the blood. In asphyxia from all causes, its coagulability is diminished; and hence it might be expected, that diminished oxygenation, which is but the inceptive stage of asphyxia, would diminish the coagulability of this fluid, and in this way conduce to hemorrhages. I might here adduce as evidence the influence of time of night and state of weather on certain functions and certain diseases,‡ and the effect of astringents in increasing the solidity of sanguineous coagula and the quantity of fibrine;§ but I forbear to dwell longer on a topic so professional, and especially on the pathology. For what has been already said, there will, I hope, be considered a sufficient apology in the novelty and importance of the general fact above stated. The novelty and importance refer rather to the *amount* than to the *existence* of this influence. The fact alluded to, is not, that spontaneous hemorrhages are cæteris paribus, more likely to occur when the barometer is low and falling, (which might naturally have been suspected,) but that the instances in which they commence *at any other time* than when the barometer is falling, are comparatively *rare*. At least in the cases for which I have been consulted, there have been as yet but few exceptions as to the falling of the barometer, or even the subsequent rain, &c. There have been several cases when the dew point was not high, though usually in such cases it is above the mean.‖ An elevated temperature diminishes the æration, and consequently the coagulability of the blood, and thus predisposes to this affection.

July.—Protracted thunder.

On the 19th there were two thunder showers, one about 3 P. M., and the other about 9 P. M. About the former hour, after several

* The daily changes of the barometer and the times of rain, may be seen in the table.

† Not to refer to other months, I was consulted in June of last year by three individuals, attacked by hæmoptysis, and all the attacks conformed to the rule.

‡ See my essay on the physiology of respiration applied to cholera, in the Transactions of the New-York State Medical Society, vol. ii, p. 177.

§ See Copland's Medical Dictionary, art. blood.

‖ A case in June, 1833, conformed to the rule as to the barometer, although the air was unusually dry, and rain did not occur within 4 days. There was a difference of 28° between the temperature of the air and the dew point.

sharp peals from explosions in the vicinity, the distant thunder kept up a faint roar, which was strictly continuous, apparently without a second's interruption, for more than a quarter of an hour. This sound, when mingled with that produced by the falling of large drops of rain, was at first hardly recognized as thunder, but closely resembled the sound of a distant cataract. The continuity must have been preserved by reverberation.

August.

Indications that auroras may possibly have appeared elsewhere.

The following were the days on which either the aurora appeared here, or on which there were some of the usual concomitants, whilst others were wanting, viz.—1st, 2d, 3d, 11th, 17th, 19th, 22d, 26th, and 31st. By the accompanying account of this meteor, it will be seen, that it actually appeared here on the 19th, and rather ambiguously on the 22d and 25th.

September.

Connexion between the depression of the barometer, and the occurrence of hæmoptysis and other hemorrhages.

1st case on the 12th; hour not recorded. Barometer falling that day, but only .05 below the monthly mean. The mean difference between the dew point and the temperature of the air 10°, which is 2° more than the mean. Rain A. M. also next day.

2d case, 18th. Barometer falling, but still .14 above the monthly mean. Difference between the temperature and dew point 6°, which is 2° less than the mean for the month. Rain on the next day A. M.

3d case, 30th. Barometer .31 below the mean for the month. Difference between temperature of air and dew point 9°, which is 1° more than the mean. Air rather drier than usual all day. Rain next day, P. M.

The cases above given, have not been selected; but in order to complete the series, those months have been taken, for which I happen not to have prepared any other miscellaneous remarks or observations.

October, November and December.

Data for determining the extent of the aurora borealis.

During a visit which I received some months since, from Mr. James P. Espy, a gentleman distinguised for his activity and originality in meteorological investigations, he expressed the opinion, that the aurora is sometimes seen at one place, whilst it is not seen at another at which the sky is clear, and the distance of which is so moderate as to preclude the possibility that the meteor is at as great a height as is generally believed.

For obtaining data which may aid in deciding upon the identity and extent of these appearances, it has occurred to me, to make a record not only of its actual appearances, but of the nights when its existence at this place is or is not possible at a certain hour in each evening. The following are the results for October, November and December, 1835. It should, however, be remarked, that

some auroras are transient, and a slight difference of time would occasion uncertainty.

October.

Aurora not seen during the month.

The following are the days on which the sky was clear in the north at 9 P. M., and on which the aurora would have been seen at that hour if it had existed there, viz.—1st, 3d, 4th, 8th to 19th, inclusive, 22d, 24th, 25th, 27th, 28th, 29th and 31st.

On every other evening of the month, clouds, in the north at least, rendered its presence doubtful.

November.

17th. Brilliant aurora, red and white.

18th. Brilliant aurora, white.

The following are the days when the aurora must have been absent here at 9 P. M., viz.—1st, 2d, 4th, 5th, 8th, 9th, 11th, 13th, 28th and 29th. During the rest of the month, its existence at 9 P. M. was rendered doubtful by the presence of clouds.

December.

Aurora present on the 10th at 9 P. M., absent on the 2d, 6th, 11th, 14th, 16th, 21st, 23d and 31st, at 9 P. M.; doubtful on the other evenings of the month, at 9 o'clock. A kind of auroral action appeared to be manifested by the presence of auroral clouds on the 12th, 17th, 19th, 21st, 22d, 23d and 24th.

Explanation of the tables.—The regular observations were made at 9 o'clock A. M. and 9 o'clock P. M. All the numerical results in the following tables, in relation to the mean atmospheric temperature and pressure, and the proportion of clear sky, were obtained by taking the half sum of the temperatures, &c., observed at 9 in the afternoon and 9 in the forenoon. Full tables of daily observations thus made at corresponding hours, were for many years published by Mr. Adie, in the Edinburgh Journal of Science, and the thermometrical results were found to correspond nearly with those obtained from the daily maxima and minima; and thus to afford a near approximation to the mean temperature. His observations were made at 10 A. M. and 10 P. M.; but it is a curious fact, that observations at other hours of the same name, give mean results not far different. The annual mean is probably somewhat less than that deduced from observations made at sunrise, 2 P. M., and an hour after sunset; but it is believed, from some comparative observations, that the discrepancy between these results and those obtained from the Schenectady academy, are partly owing to a difference in the location of the thermometers. My thermometer has been kept suspended near a pillar, but at a distance from any wall heated by fires, and any reflecting body exposed to the sun. The average proportion of the sky clear at the times of observation, is given in tenth parts of the whole visible celestial hemisphere. The barometer was not of a superior kind, but the amount of variation, and especially the time and sign of it, are indicated with sufficient exactness, and these, for the purposes I have in view,

and for the advancement of meteorology generally, are of more importance than the absolute heights. The table will facilitate the verification or refutation of many remarks in this paper in relation to the connexion between different phenomena. Before the middle of August, 1835, the observations were made at the north college, and since that time in Union-street, about 45 feet lower, and 235 feet above the tide waters of the Hudson river.

Lat. 42° 47′ } approx.
Lon. 73 45 }

TEMPERATURE, &c. FOR 1835.

JANUARY.					FEBRUARY.					MARCH.				
Day.	Ther.	Bar. In.	Clear.	Snow and Rain.	Day.	Ther.	Bar. In.	Clear.	Snow and Rain.	Day.	Ther.	Bar. In.	Clear.	Snow and Rain.
1	6°	29.70	.5	Snow P. M.	1	26°	29.22	.7	Snow A. M.	1	12	29.82	.9	
2	15	29.67	.5	Snow A. M.	2	12	29.64	.7	Snow P. M.	2	18	29.84	.9	
3	—10	29.98	.5	Snow A. M.	3	4	29.85	.9		3	7	29.98	1.0	
4	—16	30.02	.6		4	0	29.66	.7		4	14	30.12	1.0	
5	3	29.94	0	Snow A. M. and P. M.	5	15	29.54	.7	Snow P. M.	5	17	30.08	1.0	
6	—11	30.03	1.0	Snow A. M.	6	19	29.51	0	Snow P. M.	6	21	29.95	1.0	
7	—20	30.01	1.0		7	15	29.34	.5		7	29	29.78	0	Snow P. M.
8	—17	29.99	.6		8	5	29.39	.4	Snow P. M.	8	34	29.70	.1	
9	—13	30.02	1.0		9	6	29.77	.9		9	33	29.72	0	Snow A. M. and P. M.
10	— 3	30.03	1.0		10	4	29.76	.3		10	33	29.50	0	Snow A. M. and P. M.
11	2	29.92	1.0		11	15	29.48	.2	Snow P. M.	11	36	29.70	.5	
12	5	29.75	.6		12	14	29.51	.4		12	40	29.89	.5	
13	23	29.62	.2		13	27	29.35	0	Snow P. M.	13	40	29.36	.5	Rain A. M.
14	36	29.45	0	Rain A. M. and P. M.	14	17	29.91	.3		14	37	29.58	.6	
15	37	29.53	0		15	10	30.00	0	Snow A. M. and P. M.	15	38	29.45	.7	
16	37	29.32	0		16	23	29.92	0	Snow A. M. and P. M.	16	40	29.22	.6	Rain A. M.
17	34	29.70	0	Rain P. M.	17	25	29.67	0	Rain A. M. and P. M.	17	28	29.49	.8	Snow A. M
18	25	29.74	.6		18	32	29.49	0	Snow A. M.	18	25	29.80	.5	
19	20	29.68	.4		19	31	29.63	0	Snow A. M. and P. M.	19	28	29.30	.5	
20	30	29.62	0	Snow A. M.	20	25	29.98	.8		20	38	29.62	1.0	
21	27	29.40	0	Snow A. M.; rain P. M.	21	34	29.66	.5	Rain A. M.	21	36	29.50	.2	
22	32	29.55	.3	Snow A. M.	22	38	29.45	.5		22	26	29.60	0	Snow A. M. and P. M.
23	37	29.60	0	Snow A. M. and P. M.	23	31	29.88	.3		23	24	29.38	.7	
24	32	29.99	.8		24	27	29.95	.5		24	28	29.80	1.0	
25	33	29.70	0	Hail A. M.; rain P. M.	25	32	29.61	.5		25	20	30.11	1.0	
26	37	29.36	.4		26	19	29.69	.9		26	36	29.91	0	
27	35	29.48	.3		27	14	29.65	.2		27	39	29.52	.5	Rain A. M. and P. M.
28	37	29.43	.5	Rain A. M.	28	13	29.57	.9	Snow P. M.	28	40	29.45	.1	
29	31	29.87	.9							29	36	29.50	0	
30	33	29.55	0	Hail A. M.; rain P. M.						30	36	29.43	.6	
31	37	29.03	.5							31	38	29.39	.5	Snow A. M.
	1.75	29.70	.43	Mean for the month.		19°	29.64	43	Mean for the month.		29.9	29.65	.54	Mean for the month.

TEMPERATURE, &c. FOR 1835.

APRIL.					MAY					JUNE.				
Day.	Ther.	Bar. In.	Clear.	Rain, &c.	Day.	Ther.	Bar. In.	Clear.	Rain.	Day.	Ther.	Bar. In.	Clear.	Rain.
1	45°	29.48	1.0		1	47°	29.56	.5		1	65°	29.70	1.0	A. M.
3	45	29.49	.1	Rain A. M.	2	50	29.62	.7		2	72	29.72	1.0	
3	44	29.49	.4		3	55	29.77	.5		3	71	29.80	.7	
4	41	29.42	.1	Rain A. M.; snow P. M.	4	52	29.52	0	P. M.	4	73	29.65	.3	P. M. (with lightning.)
5	38	29.24	0	Rain and hail A. M; rain, snow & hail P. M.	5	52	29.48	0	A. M. and P. M.	5	70	29.48	.1	P. M. (with thunder.)
					6	50	29.51	.5	A. M.	6	64	29.78	.9	
6	39	29.08	.1	Rain A. M. and P. M.	7	51	29.62	.5		7	64	30.04	.8	
7	39	29.22	.3		8	43	29.48	.2	A. M. and P. M.	8	65	30.04	.8	
8	41	29.36	.5		9	48	29.50	.5		9	67	29.82	.8	
9	52	29.40	.7		10	51	29.50	.9		10	73	29.77	.4	P. M.
10	49	29.67	1.0		11	58	29.59	.2		11	68	29.79	.1	P. M. (with lightning.)
11	54	29.81	1.0		12	59	29.63	.9		12	71	29.71	0	P. M. (light'g & thun.)
12	53	29.73	.5		13	50	29.67	.7		13	74	29.65	.4	A. M.
13	42	29.39	0	Rain A. M.	14	42	29.39	0	A. M. and P. M.	14	66	29.70	.3	P. M.
14	38	29.46	.4	Snow A. M. and P. M.	15	38	29.30	.3	P. M. (with thunder.)	15	62	29.84	.8	
15	36	29.60	.8		16	48	29.25	0	P. M.	16	64	29.59	.2	P. M.
16	38	29.26	0	Snow and rain A. M.	17	55	29.47	.8		17	61	29.64	.7	
17	30	29.50	.5	Snow A. M. and P. M.	18	59	29.59	.5		18	61	29.55	.9	
18	32	29.82	.9	Snow A. M.	19	68	29.56	.9	P. M. ——	19	62	29.29	.2	A. M. (P. M. thu'r sh'r.)
19	40	29.54	0	Rain A. M.	20	69	29.51	.2		20	57	29.45	.6	A. M. & P. M.
20	46	29.18	.3	Rain A. M. and P. M.	21	50	29.70	.4		21	50	29.61	.5	
21	44	29.51	.4		22	54	29.89	.9		22	60	29.60	.4	P. M.
22	43	29.41	.1	Rain A. M. and P. M.	23	58	29.98	1.0		23	66	29.66	.9	
23	46	29.63	.5	Rain P. M.	24	61	29.90	.8		24	69	29.58	.9	
24	36	29.72	.5		25	71	30.58	.9		25	66	29.55	.2	P. M.
25	35	30.61	0	Snow A. M.; rain P. M.	26	70	29.53	1.0		26	68	29.50	.2	
26	40	29.65	.5		27	65	29.62	.7		27	67	29.43	0	A. M. (P. M. with ligh.)
27	49	29.67	.5		28	70	29.50	.4	A. M.	28	68	29.30	.3	P. M. (with lightning.)
28	36	29.42	0	Snow and rain A. M.	29	65	29.29	.4	A. M. (with thunder.)	29	65	29.31	.5	A. M.
29	44	29.54	.4	Rain P. M. [rain P. M.	30	66	29.59	.6		30	57	29.44	.6	
30	48	29.66	.4		31	70	29.65	.1	P. M.					
	42½	29.50	.4	Mean for the month.		56.3	29.57	.51	Mean for the month.		65.5	29.63	.52	Mean for the month.

TEMPERATURE, &c. FOR 1835.

JULY.						AUGUST.						SEPTEMBER.					
Day.	Ther.	D. Pt.	Bar. In.	Clear.	Rain.	Day.	Ther.	D. Pt	Bar. In.	Clear.	Rain.	Day.	Ther.	D. Pt.	Bar. In.	Clear.	Rain.
1	58°	45°	29.50	.6		1	68°	62°	29.55	.1		1	58°	48°	29.92	.1	
2	68	53	29.37	.4		2	64	49	29.68	.9		2	59	53	29.94	.6	A. M.
3	73	60	29.34	.9		3	63	46	29.59	.6		3	59	54	29.99	.9	
4	74	64	29.45	.1	P. M.	4	62	47	29.73	1.0		4	63	58	29.98	1.0	
5	70	66	29.49	0	A. M. and P. M.	5	63	49	29.74	.4		5	66	60	29.83	1.0	
6	67	58	29.64	.7		6	66	54	29.70	.9		6	69	64	29.61	.1	P. M.
7	74	65	29.60	.9		7	67	54	29.81	.9		7	57	45	29.72	.7	
8	64	54	29.67	.2	A. M.	8	70	56	29.86	.4		8	55	49	29.69	.9	
9	66	60	29.73	0		9	72	59	29.82	.3		9	57	49	29.74	.7	
10	63	57	29.72	.5	A. M.	10	74	60	29.73	.8		10	59	50	29.64	.5	
11	69	55	29.84	.9		11	73	67	29.74	.6		11	54	46	29.76	.6	
12	69	54	29.69	0	A. M.	12	75	69	29.75	.2	A. M. and P. M.	12	58	48	29.71	0	A. M.
13	75	70	29.57	.2	P. M. (thu.& lig.)	13	74	72	29.58	.8	P. M.	13	59	57	29.67	0	A. M. and P. M.
14	72	69	29.55	.2	P. M.	14	71	67	29.61	.2	A. M. com. 9 o'cl	14	53	45	29.83	.6	A. M.
15	68	68	29.58	0	A. M. and P. M.	15	71	62	29.84	.3		15	50	41	30.07	1.0	
16	68	63	29.60	.4		16	69	65	29.64	.5	A. M.	16	50	44	30.13	.9	
17	71	62	29.75	1.0		17	70	64	29.84	.9		17	52	45	30.65	.6	
18	72	65	29.75	.9		18	73	65	29.51	.5	3 P. M. with lig.	18	60	54	29.90	.8	
19	74	67	29.64	.5	P. M. (thu.& lig.)	19	64	51	29.68	.9	A. M.	19	60	55	29.58	.1	A. M.
20	71	65	29.67	.5	P. M.	20	66	57	29.79	.2	P. M. [& P. M.	20	55	49	29.28	.4	A. M. and P. M.
21	72	67	29.79	.5	P. M. (thu.show)	21	61	50	29.52	.2	A. M. (thu.&lig.)	21	56	48	29.35	.4	P. M.
22	72	60	29.85	.9		22	60	53	29.65	.6	A. M. and P. M.	22	54	45	29.71	.6	P. M.
23	74	63	29.78	.9		23	60	49	29.90	1.0		23	49	42	29.87	.6	
24	74	66	29.74	.9		24	60	54	29.94	.8		24	50	40	29.92	.2	
25	75	70	29.60	.6	P. M. (thu.show)	25	65	61	29.76	0	A. M. and P. M.	25	51	45	29.99	0	
26	67	60	29.79	.6		26	65	60	29.68	.5	A. M.	26	51	44	29.99	.5	
27	68	53	29.90	.8		27	65	61	29.76	.7		27	48	42	29.64	.7	
28	65	57	29.78	.1	P. M.	28	69	65	29.72	.4	P. M.	28	53	44	29.45	.1	A. M.
29	70	65	29.69	.5	P. M.	29	68	68	29.75	1.0	[& P. M.	29	46	34	29.69	.6	
30	73	66	29.56	.9	[& P. M.	30	65	56	29.68	.6	A. M. (thu.&lig.)	30	44	35	29.45	.3	
31	70	68	29.42	.5	A. M. (thunder,	31	58	50	29.74	.5							
	70	62	29.64	.48	Mean for month.		67	58	29.71	.5	Mean for month.		55	47	29.76	.5	Mean for month.

TEMPERATURE, &c. FOR 1835.

OCTOBER.						NOVEMBER.					DECEMBER.				
Day.	Ther.	D. Pr.	Bar. In.	Clear.	Rain.	Day.	Ther.	Bar. In.	Clear.	Rain and Snow.	Day.	Ther.	Bar. In.	Clear.	Rain and Snow.
1	48°	39°	29.33	.6	P. M.	1	35°	30.20	1.0		1	19°	29.39	0	Snow P. M.
2	51	45	29.31	.3	A. M.	2	38	30.02	.6		2	7	30.19	1.0	
3	47	39	29.45	.5		3	46	29.87	0	A. M.	3	6	30.25	.6	
4	47	41	29.57	.3	A. M. and P. M.	4	49	29.89	1.0		4	24	29.66	0	Snow A. M. and P. M.
5	49	47	29.64	.5	P. M.	5	58	29.78	4	A. M. and P. M.	5	23	29.49	.1	Rain A. M. and P. M.
6	56	52	29.39	0	A. M.	6	41	29.90	.3	P. M.	6	13	29.50	.2	Rain P. M.
7	47	41	29.66	.5	A. M.	7	46	29.80	0	A. M. and P. M.	7	13	29.71	.2	
8	44	36	29.88	.9		8	46	29.82	.3		8	24	29.81	.5	P. M.
9	44	39	29.87	.5		9	49	29.63	.5		9	22	29.53	0	A. M. and P. M.
10	45	41	29.88	.5		10	39	29.83	.7		10	15	30.05	1.0	
11	44	38	29.85	.5		11	43	28.98	.5	A. M. and P. M.	11	9	30.16	.9	
12	40	32	30.01	1.0		12	38	28.96	0	Snow A. M. and P. M.	12	22	29.96	.1	Snow A. M.;
13	47	42	29.86	.5		13	30	29.57	.5	Snow A. M.	13	24	29.73	.5	
14	47	46	29.86	1.0		14	34	29.82	.6	Rain P. M.	14	25	29.48	.5	Rain A. M. and P. M.
15	49	47	29.91	.5		15	42	29.79	0		15	16	29.53	0	
16	51	49	29.99	.5		16	50	29.52	.1	Rain A. M.	16	—12	29.90	1.0	
17	56	54	29.95	.4		17	38	29.66	.6		17	— 8	30.15	1.0	
18	62	59	29.81	.4		18	36	29.70	.7		18	2	30.14	.1	
19	64	61	29.89	.2	P. M.	19	41	29.81	0	A. M. and P. M.	19	22	30.19	0	Snow A. M.; rain P. M.
20	64	61	29.96	.2		20	52	29.49	0	A. M. and P. M.	20	36	29.98	0	Rain A. M. and P. M.
21	63	61	29.91	0	P. M.	21	45	29.76	.1	A. M.	21	30	29.77	.5	
22	58	53	29.96	.9		22	30	30.09	0		22	22	29.84	.6	Snow A. M.
23	56	51	29.89	.5		23	26	29.77	0	Snow A. M. and P. M.	23	18	30.14	.5	
24	48	37	29.96	.5		24	26	29.82	0		24	16	30.08	.5	
25	40	29	30.06	1.0		25	25	29.98	.5	Snow P. M.	25	32	29.76	0	Snow A. M. and P. M.
26	44	38	29.96	0		26	21	30.00	.5	Snow P. M.	26	37	29.42	0	Rain A. M. and P. M.
27	46	43	30.03	.5		27	14	29.98	.1	Snow P. M.	27	25	29.59	.8	Snow A. M. and P. M.
28	51	47	29.95	1.0		28	27	29.60	.3	Snow A. M.	28	21	29.75	0	Rain A. M. and P. M.
29	52	48	29.87	.6		29	14	29.68	1.0		29	30	29.64	.1	
30	53	49	29.75	0	A. M. and P. M.	30	15	29.81	0	Snow A. M. and P. M.	30	32	29.54	0	
31	45	39	29.96	1.0							31	20	29.76	.7	
	50	45	29.81	.5	Mean for month.		36	29.75	.36	Mean for month.		19	29.81	.36	Mean for month.

RECAPITULATION.

MONTHS.	*Ther.*	*Bar.*	*Dew Pt.*	*Clear.*
January, ...	17.5°	29.70	.....	.43
February, ...	19	29.64	.....	.43
March, ...	29.9	29.65	.....	.54
April, ...	42.3	29.50	.....	.40
May, ...	56.3	29.57	.....	.51
June, ...	65.5	29.63	.....	.52
July, ...	70	29.64	62°	.48
August, ...	67	29.71	58	.50
September, ...	54.5	29.76	47.5	.52
October, ...	50	29.81	44.5	.50
November, ...	36	29.75	.....	.34
December, ...	19	29.81	.....	.36
Mean for year, ...	43.9	29.64		.45

ERRATA.

Page 182, 9th line from bottom, for "plate" read *plates.*
Page 183, bottom line, for "act" read *fact.*
Page 185, 10th line from bottom, for "reflecting" read *reflected.*
Page 186, 21st line, for "surfaces of superior" read *superior surfaces.*
Page 186, 12th line from bottom, for "observe" read *observed.*
Page 187, 12th line, for "stellar" read *stellate.*
Page 188, 10th line, for "coronæ" read *corona.*
Page 188, 5th line from bottom, for "arc" read *are.*
Page 190, 5th line, for "account" read *accounts.*
Page 192, 4th line, for "19.55" read 29.55.
Page 193, 13th line from bottom, for "35," read 35°.
Page 193, bottom line, for "insolated" read *isolated.*
Page 195, 4th line, for "coruscation" read *coruscations.*
Page 201, 9th line, for "arches" read *arch.*
Page 201, 3d line from bottom, for "of" read *or.*
Page 202, 2d line from bottom, for "aurora" read *auroral.*